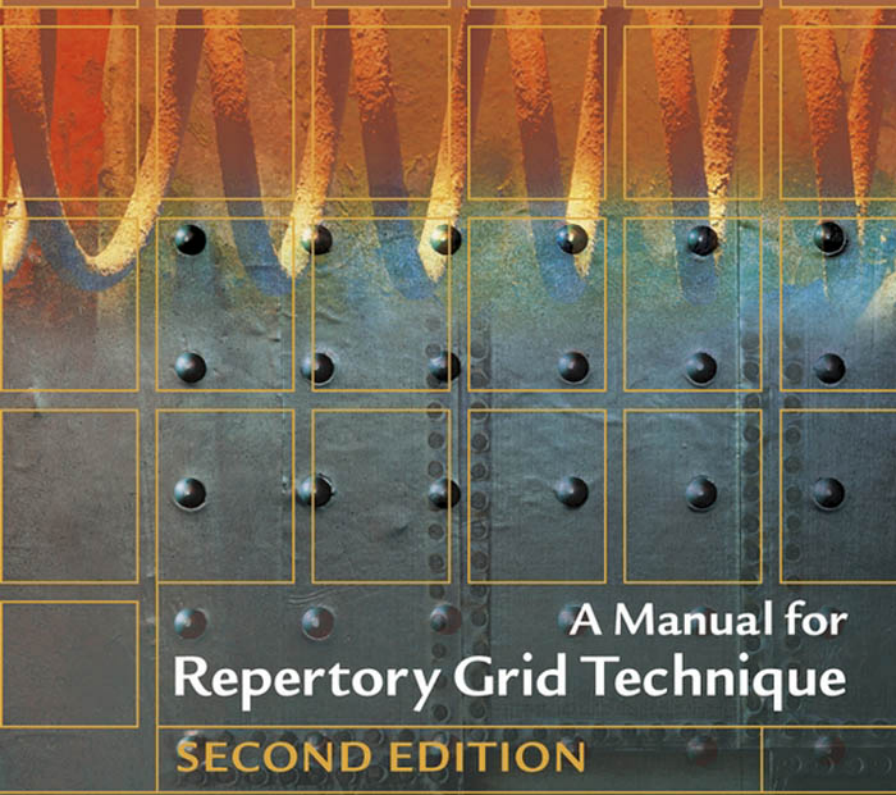
Fay Fransella, Richard Bell
and Don Bannister



# A Manual for Repertory Grid Technique

SECOND EDITION

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Second Edition

Fay Fransella, Richard Bell and Don Bannister

John Wiley & Sons, Ltd

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# ABOUT THE AUTHORS

**Fay Fransella** is Founder and Director of the Centre for Personal Construct Psychology, Emeritus Reader in Clinical Psychology, University of London and Visiting Professor of Personal Construct Psychology at the University of Hertfordshire. She has written 11 books, eight of them specifically relating to personal construct psychology and the use of repertory grids, and she has published over 150 journal papers and book chapters. She wrote the first edition of *A Manual for Repertory Grid Technique* with Don Bannister for Academic Press in 1977.

She trained and worked as an occupational therapist for 10 years before taking a degree in psychology and a postgraduate diploma in clinical psychology in 1962. It was during her first job as a lecturer at the Institute of Psychiatry, London, that she was introduced to George Kelly's personal construct psychology and his repertory grid method. Both were revolutionary alternatives to the dominant behaviourism of the time. She found the view that we are all free agents responsible for what we make of the events which continually confront us particularly liberating. Since that time she has conducted research, together with teaching and writing, within the framework of Kelly's ideas. Her main area of research has been stuttering, for which she used a form of repertory grid. She has also conducted research on weight disorders and various psychological problems.

**Richard Bell** is an Associate Professor of Psychology at the University of Melbourne. He is interested in practical problems of measurement in clinical, organizational and educational settings. He has written extensively on the analysis of repertory grid data and has authored widely used software for the analysis of such data.

The influence of **Don Bannister** in arousing interest in George Kelly's theory and methods of assessment has been profound. Even after his untimely death in 1986 his influence continues, through those he inspired, through his professional research and writings, and also through his four novels. In the

year in which this second edition of the *Manual for Repertory Grid Technique* is published the 15th International Congress in Personal Construct Psychology was held in Huddersfield, UK, focusing on that outstanding influence. He spent much of his professional life carrying out research for the UK Medical Research Council, which included a year working with George Kelly at Ohio State University in 1965. He saw the psychology of personal constructs as an approach to the person that was empowering, democratic and, above all, valuable in helping people understand themselves and others. He was insistent that psychologists should use what power and influence they have to make a difference in the lives of people. The main tool he used in his own research was the repertory grid. He would have taken great interest in the vast amount of new work that has been carried out with and into that tool which is detailed in this second edition of the book that he co-authored in 1977.

# PREFACE

When we planned this book we did not think that the task would be too difficult. All we had to do was 'update' it. After all, the first edition had been on sale for 20 years or so, suggesting that it served a purpose as it was. Best not to mess too much with something that people seemed to like.

What extraordinary naivety! Repertory grids are now used in nearly every walk of life. New measures seem to appear almost daily. People have been exploring the nature of the grid itself. As a result, we found ourselves faced with the writing of a largely new book.

First a word about 'we'. Don Bannister died some years ago, but we want to recognize his role in bringing personal construct psychology and repertory grid methods to the attention of many people, and so retain both his presence as an author and some of his contributions to the first edition of the book. Fay Fransella remains as an author, and the other author is, of course, Richard Bell. He is essential to the informed coverage of this book, being an authority on the analysis of grid data. His expertise can be seen throughout this second edition of the book, but particularly in Chapters 4 and 5.

We hope that the reader will find a balance between information on the grid methods, often in a research context, and discussions of the use of grids in practice. It has been a balancing act, and perhaps on occasion you may think we have fallen off the tightrope, but we hope not too often.

So much for the change in authors. However, some things have not changed – for example, the nature of the grid itself. Grids are like people. They come in many shapes and sizes, they ask questions and give answers, they can be studied as a group or individually, on one occasion or successively over time, and they can be used well or distorted out of all recognition. All of this means that we make no attempt to be definitive.

Apart from a willingness to contemplate a few statistical ideas, no specialized knowledge is required. In 1955, George Kelly in fact described a very simple method for 'going beyond words'. His Rep test enabled him to see how one idea has linkages with a number of other ideas, and how one person

can be seen as similar to some people and yet different from others. These linkages are such that the person may not easily be able to put them into words. The first part of the book deals with the development of grid technique from its inspired beginnings to the many forms that are now used.

As in the first edition, we have included an annotated bibliography on grid usage at the end of the book. So great is that usage now that we have made it a whole chapter rather than merely an appendix. The annotated list is not definitive, nor was it planned to be so. No attempt has been made to select 'the best' work – for 'the best' will usually be defined within specific contexts. We have aimed for as wide a spread as possible. However, some attempt has been made to group papers under specific headings, although the distribution is of necessity rather arbitrary, as in many cases one paper could be placed under several headings. There is also considerable overlap between the annotated bibliography and the References section, but this is a manual, not a general academic text, so we felt that it was important that the grid user should be able to lay hands on a reference quickly.

Our general aim is that this book should be of use to two types of reader. For those who think they would like to use grids in their research or in practice, we hope to provide enough information to enable them to set about designing their own grids for their own specific purposes, while at the same time making them aware of the underlying assumptions and limitations. For those who already know how to design and analyze grids, we aim to provide information on how different aspects of grids (length of rating scale, the ways in which constructs are elicited, whether constructs are supplied or elicited) can produce different results. There are also chapters on current methods of analysis and specific measures that are in use at present.

We believe that grids are best used within the theoretical system from which they came. Therefore, as in the first edition, we start with an outline of personal construct theory, focusing on those aspects of the theory that are relevant to grid usage. In places it may seem as if we are obsessed with certain ideas – such as bipolarity and range of convenience – and this is probably true. It comes from many years of advising students and professionals alike on the design of grids and, in particular, on dealing with problems that arise because of ignorance of some of the basic requirements of this form of measurement. In the end, grids and personal construct theory are about people, and we have been awed by the sheer imaginative and creative way in which so many people have used grids and explored their innermost workings. We hope that this book will encourage people to explore new ways of using grids and to create new ones. Perhaps there will even come a time when people create ways in which a grid can tell us something about how a person who is unable to use language construes the world.

Fay Fransella

Richard Bell

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The publishers would like to thank Joseph Kelly for granting permission to use the previously unpublished material by George Kelly. Quotations throughout the book from G.A. Kelly (1955/1991) *The Psychology of Personal Constructs*, *Volumes 1 and 2* are reproduced by permission of Thomson Publishing Services.

Chapter 1

# THE BASIS OF REPERTORY GRID TECHNIQUE

> A scientist's inventions assist him in two ways: they tell him what to expect and they help him to see it when it happens. Those that tell him what to expect are theoretical inventions and those that enable him to observe outcomes are instrumental inventions. The two types are never wholly independent of each other, and they usually stem from the same assumptions. This is unavoidable. Moreover, without his inventions, both theoretical and instrumental, man would be both disoriented and blind. He would not know where to look or how to see.
> (Kelly, 1969a, p.94)

## GRIDS: WHAT ARE THEY?

George Kelly, physicist, mathematician and would-be engineer, loved mathematics. He regarded mathematics as 'the purest form of construing' (Hinkle, 1970). It would therefore have been surprising if he had not brought mathematics into his psychological theory in some form or other. He chose to do this by creating the *repertory grid*. He saw the grid as no more and no less than another way of stating his theory of personal constructs. It is not an 'add-on'. It is personal construct theory in action. He gives a detailed account of this relationship in the first in his series of three lectures on the function of interpretation in psychotherapy (Kelly, 1959).

His argument goes something like this. Suppose that Fred believes that people with *cold eyes* tend to be *mean with their money*. Let us suppose also that Fred is a psychologist and will undoubtedly yearn to give his notions a statistical foundation. Therefore it will not surprise us when he sets out to

survey his landscape of people and judge them, in each case, in terms of the dimensions *cold-eyed* vs. *warm-eyed* and *mean* vs. *generous.* He may then cast his observations on, say, 100 people into the form of a Chi-square which may appear as follows.

| | Cold eyes | Warm eyes |
|---|---|---|
| Mean | 28 | 19 |
| Generous | 2 | 51 |

Chi-square=36.9 ($P < 0.001$)

We can view these data in two ways. First, we can look upon them as telling us something about the nature of eye temperature and miserliness in people. We can say (given the customary cavils about experimental design) that at a given level of significance, *cold* vs. *warm* eyes are related to *miserliness* vs. *generosity*. We can proceed from there to offer explanations to account for the relationship, formulate consequent hypotheses and design further experiments to test them.

Alternatively, we can view these data as information about how Fred sees his world. The significant association that was found could be regarded as a sign that, for Fred, the constructs of *cold-eyed* vs. *warm-eyed* and *mean* vs. *generous* are related. We could go on to discuss further constructs of Fred which might be interlinked, and the total construct system of which these constructs are a part. We could consider what lines of action Fred might be prompted to take, viewing people thus – what kind of validating or invalidating experiences might strengthen or modify his mode of construing, and so on.

One approach does not deny the usefulness of the other, and personal construct theory takes the first into account in concerning itself with validation. Construing is the lively way in which we go about trying to anticipate events – real events as we construe them – in the outside world.

However, if we consider the second approach for a moment and comment on the data as revealing aspects of Fred's personal construct system, then in his Chi-square we have the beginnings of repertory grid analysis. Many such Chi-squares are in grid data. We can also look at Fred's construing in another way. According to Bell (in press), instead of thinking of Fred's constructs in terms of degree of association (correlation) and Chi-square (statistical significance), we can see them in terms of prediction. To what extent does Fred predict that a person who is *warm-eyed* will thereby be *generous*? The correlation between these two constructs is 0.61. The correlation of course gives us more information than the Chi-square. It tells us that, for Fred, there is

37% of meaning in common between his two constructs. However, it does not tell us which is the more important construct to Fred – that is, which is the predicted and which is the predictor. This is discussed further in Chapter 4.

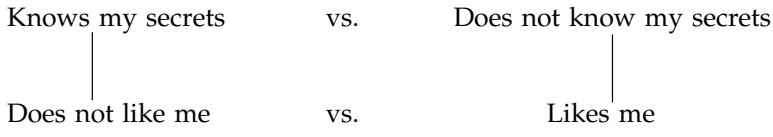
Whichever approach we use to understand the relationship between constructs, behind each single act of judgement that a person makes (consciously or unconsciously) lies his or her implicit theory about the realm of events within which he or she is making those judgements. Repertory grid technique is, in its multitude of forms, a way of exploring the structure and content of such implicit theories. Each of us has many such implicit theoretical beliefs about billiards or love affairs or accounting or children or God. In turn, our smaller theories (such as construct subsystems) are linked into the overall theory that we call a personal construct system.

In using the metaphor of 'theory', we are not arguing that such theories are formal and articulated. They may be verbal, non-verbal or pre-verbal, they may be tightly structured or loosely structured, they may be easily testable or almost too tangled to test, and they may be idiosyncratic or commonly held. However, they are theories in the sense of being networks of meaning through which we see and handle the universe of situations through which we move. In this sense, our theories – our personal construct system – might be referred to in other psychological approaches as our 'personality', our 'attitudes', our 'habits', our 'reinforcement history', our 'information-coding system', our 'psychodynamics', our 'concepts', our 'philosophy' or our 'central nervous system'.

Kelly argues that it would be convenient and useful to view personal construct systems as being made up of hierarchically linked sets of bipolar *constructs – nice–nasty*, *here–there, two-stroke–four-stroke*, *ugly–beautiful, alkali–acid*, *past–future, master–servant*, *odd–even*, and so on. Thus a dictionary is a record of how verbalized constructs are publicly related. The difficulties of exploring construct systems, by grid or any other means, force us to focus more on verbalized and easily accessible constructs. However, we should never assume that a construct is the same as its verbal label. A construct is a discrimination, not a verbal label. We should accept that in talking about an individual's personal construct system, we are talking about his or her stance towards the world – we are talking about a *person.* Thus Kelly describes a construct in the following terms:

> A construct is like a reference axis. A basic dimension of appraisal, often unverbalised, frequently unsymbolised, and occasionally unsignified in any manner except by the elemental processes it governs. Behaviorally it can be regarded as an open channel of movement, and the *system of constructs* provides each man with his own personal network of action pathways, serving both to limit his movements and to open up to him passages of freedom which otherwise would be psychologically non-existent.
>
> (Kelly, 1969b, p.293)

Suppose that I am haunted by the feeling that the more people know my secrets, the less I will be liked. This can be summarized in diagrammatic form as follows.




It is possible to demonstrate by the mathematics of a grid that these particular constructs are linked for me in this way. However, even when the argument is supported by the mathematics of a grid investigation, it is necessarily an oversimplification of the probable state of affairs. We are singling out a pair of constructs from what is a very complex network. The value and meaning of these constructs can only ultimately be assessed in terms of their location within this entire network, which is a changing network in any case. However, suppose that the grid has revealed this aspect of my construing to you. You may then use it as a source of information about me, either as it presents itself or as subsumed under some higher-order construction of your own – for example, that it is essentially 'neurotic' (vs. 'normal'). For indeed our constructs are not all equal – some are more meaningful or important to us than others.

However, I may use this revelation about my construct system to ascertain to what degree I think my interpersonal relationships are limited by this mode of construing – this kind of anticipation of how other people will respond to me. Yet more aspects of my construing may need to be examined in order to locate other constructions which I place upon the world, which in some way contradict or cut across this belief that the more people know my secrets, the less I will be liked. It may be that even while I am believing this I make special and exceptional cases, such as psychotherapists, priests or women. It may be that if I am drunk I believe I have a licence which takes away the effect of the ruling. It may be that I am changing my secrets and believe that they are becoming less objectionable. Finally, it may be that I am ceasing to operate the construction as a self-fulfilling prophesy, and new evidence may yet become available to me which radically alters this aspect of my interpretative system.

The purpose of grids is to inform us about the ways in which our system is evolving, and its limitations and possibilities. The results of the grid have often been regarded as a map of the construct system of an individual – a kind of idiographic cartography as contrasted with, say, the nomothetic cartography of the semantic differential (Osgood, Suci & Tannenbaum, 1957). To the extent that a grid gives us a map of an individual's construct system, it is probably about as accurate and informative as the maps of the American coastline which Columbus provided. At that, it may be a great deal more sensitive to the

nature of the person than, say, a questionnaire. This issue of accuracy is referred to again in relation to the interpretation of one grid in Chapter 7.

The grid is perhaps best regarded as a particular form of structured interview. Our usual way of exploring another person's construct system is by conversation. In talking to each other, we come to understand the way in which the other person views the world, what goes with what, what implies what, what is important and unimportant, and in what terms the person seeks to assess people, places and situations. The grid formalizes this process and assigns mathematical values to the relationships between a person's constructs. It enables us to focus on particular subsystems of construing, and to note what is individual and surprising about the structure and content of a person's outlook on the world. Yet the information it gives us is not novel or some peculiar product of our 'scientific method'. It is a formalized version of the kind of information we are always seeking about each other, and the kind of understanding we are always in the process of gaining about each other.

## THE GRID AS PART OF PERSONAL CONSTRUCT THEORY

People often behave as if all that is needed for effective research or applied work is a single idea and an instrument. They ignore the fact that behind any single idea is a whole series of assumptions, and underlying any instrument is yet another series of assumptions. The assumptions underlying the 'instrument' may well contradict the assumptions implicit in the 'idea'. Thus the grid method is often used quite without relation to its parent theory. It has often been regarded as some kind of measure of 'attitudes', 'meaning', 'personality' or 'concepts'.

Yet people who use the grid thoughtfully will find themselves assuming the 'truth' of many of the assumptions of personal construct theory, even if they are ignorant of the theory as such. In the following account, attention is drawn to those aspects of the theory from which the grid is directly derived and where the relationship between theory and instrument needs to be borne in mind.

## GRIDS: A MEASURE OF WHAT?

The model underlying personal construct psychology is explicitly the idea of 'every man his own scientist'. Kelly suggests that we strive to make sense out of (give meaning to) our universe, ourselves and the particular situations that we encounter. To this end each of us creates and re-creates an implicit theoretical framework which, whether it is well or badly designed, is our personal construct system. In terms of this system we live, anticipate events, determine our behaviour and ask our questions. It is in terms of this same system that we evaluate outcomes and elaborate changes in the interpretative

system itself. Thus in Kelly's terms, we are 'scientists' who derive hypotheses (have expectations) from our theories (our personal construing). We subject these hypotheses to experimental testing (we bet on them behaviourally, and we take active risks in terms of them). We observe the results of our experiments (we live with the outcomes of our behaviour), we modify our theory (we change our minds, and we change ourselves), and so the cycle continues. We can, of course, also look inward and try to understand some of the mysteries of our own selves.

Kelly devised the repertory grid technique as a method for exploring personal construct systems. It is an attempt to stand in others' shoes, to see their world as they see it, and to understand their situation and their concerns. Kelly grounded his theory in the mathematical relationships he saw between the constructs. For instance, he says:

> Now let us turn to a personal system made up of a whole lot of constructs. Such a system is a complex, or, if you don't mind the term, a conceptual grid within which events can be seen in depth or in their psychological dimensions.
>
> (Kelly, 1959, p.13)

He talks of a series of events, $a, b, c, \ldots k$, which are dealt with by construing them as being identified with one pole or the other of construct A – that is, falling into two categories. Now the events can be dealt with in a more complex fashion by employing a second construct B. The events can now be described by four categories. With a third construct C, eight categories can be abstracted. The number of such groupings in a system of dichotomous constructs will be equal to $2^n$, where $n$ is the number of constructs applied. Kelly continues as follows:

> By this same process events are ascribed individuality – I won't say 'uniqueness', since that implies concrete discontinuity between events – but an individuality which makes each event distinguishable from all other events – distinguishable, not because of its unrelatedness to them, but because it is indeed related to them in a complex pattern of likenesses and relevant differences. For the purposes of psychological response, then, each event becomes *psychologically* a sequence of pluses and minuses as it is scanned in succession by a series of constructs.
>
> (Kelly, 1959, pp.13–14)

Suppose that a small child is given a sweet to suck. This, for the child, is an event, and one that takes on other meanings as he sees it is related to smiles, a nice taste, and kind words. He makes sense of this by it being contrasted with frowns, a nasty taste and scolding voices. Kelly states that:

> We can represent this relationship as a rectangular grid – a Repertory Grid – with the events $a, b, c, \ldots k$ arranged along the top with each event respectively heading a column of cells, and with constructs . . . arranged along the vertical margin, each at the left end of a row of cells. Since the constructs are bi-polar, we can make an entry in each cell to indicate whether the construct in that row is applied one way (+) or the other (−) to the event represented in the column.
>
> (Kelly, 1959, p.14)

As can be seen, grids for Kelly were not just an add-on – they were a crucial part of the way in which he conceptualized his theory. It could even be that he viewed his whole theory mathematically and then had to translate it into words.

## GRIDS ARE ABOUT CONSTRUCTS

Kelly offers several definitions of a construct. For example, a construct is 'a way in which two or more things are alike and *thereby* different from a third or more things'. This definition manifests itself directly in one of the procedures for eliciting constructs for grids. At another time, Kelly stated that 'a construct is a way of transcending the obvious'. Here Kelly is emphasizing that when we make a new abstraction out of events, we are escaping from the limitations of the 'facts' of earlier abstractions.

It is worth noting that another essential feature of personal constructs as stated in the Construction Corollary is the notion that they enable us to anticipate future events. Hinkle (1965) focused his theory of implications and his implications grid on this by equating 'implications' with 'anticipations'. However, in general, little attention has been paid by researchers to this aspect of the theory in relation to grids. Yet in practice we are trying to understand what predictions a person is making when we subsume the construing of another person from the output of their grid (*see* Chapter 7) and when we try to explore their construing by 'laddering' (*see* Chapter 2). When we attempt to look at the world through another's eyes, we are attempting to understand what their construing leads them to expect from their world of people and events.

Of great importance here is the idea that we have been talking 'as if' there is a thing which is a 'construct'. In fact we are not. What we are talking about is the *process* of construing, which consists of the application of personal constructs we have each created during our lives and which are formed into our personal construct system.

### Constructs are Bipolar

In all of his definitions, Kelly retains the essential notion that constructs are bipolar, as stated in his Dichotomy Corollary. His argument is that we never affirm anything without simultaneously denying something. This makes the notion of a construct quite different from the notion of a concept. When we say that Mary Bloggs is *honest*, we are not saying that Mary Bloggs is *honest* and she is not a *chrysanthemum* or a *battleship* or the *square root of minus one.* We are saying that Mary Bloggs is *honest* and she is not a *crook* nor is she *evasive* – or whatever is the opposite of the construct for Mary. It is often the opposite pole of a personal construct that gives us a clear meaning of that construct. We do not always, or even very often, specify our contrast pole, but Kelly's argument

is that we make sense of our world by simultaneously noting likenesses and differences. It is in the contrast that the usefulness of the construct subsists. The bipolarity resides in the construct itself, not in the two sets of elements that are sorted by the construct. *North–south* is an axis of reference, so that elements which in one context are *north*, in another context become *south*. The essence of a construct is that it is a movable feast. It is a vehicle whereby we move from one situation to another. It is one way we have chosen to discriminate between events in our personal world.

It is this very bipolarity that makes the designing of grids possible. Suppose that we try to use 'concepts' to build a grid, and we start with the concept *honest.* We could designate some of our acquaintances as honest and leave the rest outside the concept. Then we might go on to the concept *cruel* and put some of our acquaintances under that heading, leaving the rest outside once more. All we can now do is to make some statement about class inclusion or exclusion. We can make statements about the number of people who are in one category and who are or are not in another. However, we cannot directly examine the *relationship* between the concepts except in terms of overlap.

When creating a grid, we may use a simple bipolar grid where we allot each of our elements to one pole of the construct or the other, or we rank our elements from 'most like' to 'most opposite', or we rate them on, say, a seven-point scale. In each case it is the dimensionality – the bipolarity – of the construct which enables us to arrive at some kind of matrix of the pattern of interrelationships between constructs.

It is this capacity of the grid to look at the *relationship* between constructs that enables us to go beyond the issue of whether the person's construing is 'correct' or 'incorrect'. If we limit ourselves to the idea of the concept, then we are liable to end up working in terms of such notions as 'over-inclusion' and 'under-inclusion'. However, to say that a person's concepts are over-inclusive or under-inclusive inevitably involves us in the argument that there is a correct and right level of inclusion of objects within the concept, whether we define 'right' in terms of normative standards or some set logic. We can, if we wish, compare a person's manifest relationships between constructs in grid form with normative standards or with any other standards that we care to erect. However, we are not limited to this venture. We can consider the individual person's construct system as a system *within itself* and move from there to issues such as communicability, and so on. References are made to the bipolarity of constructs as a theme that emerges throughout the other chapters in this book.

## Constructs Have a Range of Convenience

All grids involve a consideration of the issue of range of convenience. The Range Corollary states that a construct (or a subsystem of constructs) always

operates within a context, and that there is a finite number of elements to which it can be applied by a given person at a given time. This is something we recognize very readily in speech when, for example, we categorize furniture as *antique* or *modern* or numbers as *prime* or *non-prime*, whereas it bends our minds to consider *antique* or *modern* numbers and *prime* or *non-prime* furniture.

Obviously the range of convenience of our constructs can be and sometimes is extended, as in poetry, intoxication and inspiration. However, for a given act of construing at a given time, the range of convenience of our constructs is always limited. From this argument about the nature of construing, Kelly derived a prime rule of grid construction. For given individuals completing a grid, all elements must be within each person's range of convenience. Otherwise we are inviting that individual to commit a nonsense. For example, he may sort his people into *attractive* and *unattractive*. However, because we have not allowed him to tell us that, for him, *attractive–unattractive* is a construct whose range of convenience is *limited to women*, then what he may do is put some of his women into *attractive*, some of his women into *unattractive* and all of his men into *unattractive.* He is forced to do this because we have left him no alternative. Obviously, when we come to relate the construct *attractive* to others in the grid, we will be bound to produce a distorted picture of his system.

It is interesting to note that in constructing the semantic differential, Osgood ignored the range of convenience rule, and this enabled him to make some interesting statements about precisely those constructs which have the *most enormous ranges of convenience.* His famous trio of *good–bad*, *active–passive* and *weak–strong* essentially represents what Kelly called major superordinates. The type of problem that is created by ignoring range of convenience is nicely illustrated by Brown's (1958) question in relation to the semantic differential: 'Is a boulder sweet or sour?'.

## SOME PERSONAL CONSTRUCT THEORY COROLLARIES

### Organization Corollary

This reads as follows: 'each person characteristically evolves for his convenience in anticipating events a construction system embracing ordinal relationships between constructs'. Here Kelly is pointing to the fact that construct systems are hierarchical, with constructs standing to each other in what he terms subordinate and superordinate relationships.

This is something that is recognized in formal logic, in that *modes of transport* subsume *boats* which subsume *sailing boats* which subsume *dinghies* which subsume *Mirror dinghies*, and so on. It is recognized in common argument when we talk of important ideas, central ideas, or the main features of this or that, as contrasted with detail, trivia, and so on. However, standard use of

grids may in some cases have led to the impression that constructs are to be seen in terms of a Euclidean geometry, lying flat and side by side rather than being viewed as pyramidal in relation to each other. Early grid studies such as those of Hinkle (1965), with his description of 'laddering', and Landfield (1971), with his description of 'pyramiding', have focused on the organizational qualities of construct systems (*see* Chapter 2).

Kelly complicates our understanding of this corollary by describing two types of ordinal relationship. One construct can subsume another as one of its elements in two ways. First, 'it may extend the cleavage line intended by the other'. That is, *good* vs. *bad* may subsume *intelligent* vs. *stupid*, with *good* including things that are *intelligent* plus many things that are neither *intelligent* nor *stupid*. On the other hand, one construct may 'abstract across the other's cleavage line'. In that case, *intelligent* vs. *stupid* may be subsumed by *evaluative* vs. *descriptive*. *Intelligent* vs. *stupid* would be identified as *evaluative*, and in that sense would be different from *giants* vs. *pygmies*. Several authors (e.g. Slater, 1969; Ryle, 1975; ten Kate, 1981) have pointed out ways in which Kelly has created some confusion in his theorizing with this dual definition. On the other hand, Jankowicz (2003) uses these two definitions to underpin his 'laddering down' as well as his 'laddering up' methods.

## Individuals and Grids

The Individuality Corollary states simply that people differ from each other in the way in which they construe events. No one has ever responded to a 'stimulus'. They respond to what they *perceive* the stimulus to be. The aim of grids is to increase our capacity to explore the individual worlds of meaning in terms of which we live. In Kelly's terms, the aim is 'to get beyond the words'. Even the most 'public' of constructs (e.g. those of mathematics or science) are personal in that each of us must individually give them a meaning and make them part of our total system. 'Public' constructs may have agreed support from a group of people, with repeatedly demonstrated predictive implications and often rehearsed meanings, as emphasized in Kelly's Commonality Corollary. Thus neither personal construct theory nor grids are exclusively concerned with those ambiguous constructs about feeling and relationship that people most often refer to as 'personal'.

## Commonality and Groups of Individuals

The Commonality Corollary states that 'to the extent that one person employs a construction of experience which is similar to that employed by another, his processes are psychologically similar to those of the other person'. This is the contrast pole of the individuality corollary but, in the context of the total theory, it reminds us that the grid is most useful when it follows through the lines of implication of a construct. At the level of

the exact relationship between two constructs, two people may appear to be construing in a very similar way, but if the lines of implication of these constructs are followed through for the two individuals, radical differences may emerge.

These differences can also be seen at group level. For example, Fransella and Bannister (1967) showed that both British Labour Party and Conservative Party supporters saw a positive relationship between the constructs *proud of being British* and *likely to vote Conservative.* If we follow the relationships through the network, we then find that for Labour Party supporters, *proud of being British* related positively to *being prejudiced*, while for Conservative party supporters it related negatively to *being prejudiced.*

This corollary is of direct relevance when research needs to be conducted with groups of people using the same grid (e.g. in organizations). It is argued (e.g. Fransella, 1988) that this is quite compatible with personal construct theory provided that the constructs are elicited from people in the specific group, a sample of whom will all complete the final grid.

## Sociality Corollary

This is a key corollary within the theory. It states that 'to the extent that one person construes the construction processes of another, he may play a role in a social process involving the other person'. This is key because it describes how we try to understand others. It also implies that to construe the constructions of another person is not simply to hold or mimic those constructions. If someone points out to you that two aspects of your way of interpreting your world are contradictory, that person is certainly not simply reproducing your constructions, but is construing them. Another crucial point here is that, in Kelly's terms, to play a role in relation to another person does not mean that we do this consciously. We can, and probably do, most often come to an understanding of how another person sees the world at an 'intuitive' or non-verbal level. We then test out that understanding by behaving 'as if' it were true, and we soon find out whether it is or not by the response of the other person.

## Choice Corollary

This is the main motivational corollary of personal construct theory. It states that 'a person chooses that pole of a construct that is likely to lead to the greater elaboration and extension of his or her system'. It is argued that we choose that pole of a construct which is likely to lead to our making increased sense of our world. This choice is not always, of course, made at a conscious level. In personal construct terms, we strive after meaning. We strive to make our world more and more predictable. It is in this sense that we can be said to have 'chosen' to be the sort of person we are now. We have indeed created

ourselves, and by that same token we can 'choose' to re-create that person if they are not to our liking. However, that re-creation can be enormously difficult. This corollary is relevant to Hinkle's (1965) implications and resistance-to-change grids and laddering. In each case, people are asked to state which pole of their constructs they 'choose' to describe themselves. It is also important for our understanding of the results obtained from grids, because it helps to explain why, for instance, people provide lopsided ratings – that is, why they rate more elements on one pole of a construct than on the other pole.

## DIFFERENT KINDS OF CONSTRUCT

Construct theory offers different ways of categorizing constructs. They can be 'pre-emptive' (if this is a lie, it is *nothing but* a lie), 'constellatory' (if this is a lie, then it is also *unfair*, *punishable*, *a sure sign of moral decay*, and so on) or 'propositional' (this may be considered *as if it were*, among other things, a lie). It is surprising that grids have seldom been used to explore these ideas within the theory. Perhaps they are ideas that are taken for granted. This, of course, should not be the case, and perhaps this edition of the *Manual* will encourage those interested in research to explore these ideas further.

## CONSTRUCTS IN TRANSITION

Kelly argues that 'man is a form of motion', and has offered a number of constructions designed to deal with the idea of constructs in transition. His notions of guilt (the awareness of dislodgement of the self from one's core role structure) and threat (the awareness of an imminent comprehensive change in one's core role structures) are examples, as is his notion of *hostility* (the attempt to extort validational evidence in favour of a type of social prediction which has already been recognized as a failure), which is designed to stop the threat materializing. These all aim to cast light on the way in which our construing systems change and resist change as we experience varying validational fortunes. Once again there has been little research using repertory grids to explore these theoretical ideas. It is to be hoped that people will become interested in elaborating forms of grid method that are designed to detect and explore these ideas further and so assist people whose constructs are in transition and who are dealing with their own guilt, threat, hostility and aggression.

## CONCLUSIONS

This is a very superficial account of what is a very complex theory. However, it points to aspects of the theory that underpin or relate to our understanding of repertory grid data.

Although it is an often repeated truism that the grid is a method, not a test, it is still a largely ignored truism.

This is exemplified by our constant failure to recognize that the use of a grid involves all the types of problems that we confront in designing an experiment. Whatever the question that is being asked experimentally, to use a grid is to involve the researcher in a whole series of problems. These concern the nature of the elements to be used, the forms of construct elicitation and the format (e.g. ranking, rating or bipolar allotment) in which the subject is to respond. In addition, there is a multiplicity of ways in which grid data can be analyzed and many types of inference that it is legitimate to draw from these data. Yet whether the focus of concern is with an individual case in psychotherapy or large-scale research, grids tend to be too readily used, and the user often becomes buried in the mountains of data which are generated.

The potential usefulness of the grid method has been amply demonstrated in practice, and can reasonably be argued in principle. The great advantage of the grid is that data from a single individual can be subjected to many of the types of group statistics which we have hitherto reserved for populations of people. Cluster analysis methods, principal-components analysis, *t*-tests of group differences, correlational consistency measures, significance of correlation methods, coefficients of concordance and a range of other measures are all technically feasible.

Grid data are potentially rich in the light that they may throw on the underlying structure and manifest content of the construing which underlies the person's grid responses. The use of group statistics within the population of responses of a single individual enables us to establish the meaningfulness of the single grid, in that it can be readily shown that a given grid is most unlikely to have been produced randomly. The pattern of associations within the responses is demonstrably *meaningful*, in statistical terms, however difficult it may be to interpret its psychological meaning (Draffan, 1973).

Although the grid was logically derived from construct theory, it is illogical to argue that it must only be used within the context of the theory. What can be argued is that any person who is using the grid should be aware of the assumptions underlying it and should make these assumptions clear to his or her audience. Thus the researcher will be involved in an internal and public dialogue with personal construct theory, and it is *in this sense* that the method cannot be separated from the theory.

Constructivism and an emphasis on qualitative measurement have been adopted by many psychologists. However, empiricism is still a strong tradition in many countries, and it seems to have led many researchers and practitioners to value instruments more than they value the ideas and arguments from which those instruments derive.

## Some Sources for more Details of the Theory

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Fransella, F. (1995) *George Kelly*. London: Sage Publications.

Kelly, G.A. (1955/1991) *The Psychology of Personal Constructs.* New York: Norton (reprinted by Routledge, London).

Chapter 2

# CONSTRUCTS AND ELEMENTS

> Thus, for any of us, the sharing of personal experience is a matter of *construing* the other person's experience and not merely a matter of having him hand it to us intact across the desk. The psychology of personal constructs therefore lends itself quite conveniently to the handling of the theoretical problem of gaining access to private worlds.
>
> (Kelly, 1955/1991, p.200/Volume 1, p.139)

This chapter is concerned with some issues that you will need to consider about constructs and elements when you start out to design your grid.

## WHAT IS AN ELEMENT?

Elements are defined by Kelly as 'the things or events which are abstracted by a construct' and are seen as one of the 'formal aspects of a construct' (Kelly, 1955/1991, p.137/Volume 1, p.95).

## WHAT IS A CONSTRUCT?

Describing what we mean by a 'construct' is not as simple as describing an element because a construct has properties, and Kelly has offered several definitions of it. The most important property of a construct is described in the Dichotomy Corollary – it is bipolar.

## It is Bipolar

Personal constructs are bipolar dimensions which each person has created and formed into a system through which they interpret their experiences of the world. It is the bipolarity of a construct that distinguishes it totally from a concept. For example, by stating that something is a *tree*, we are also stating specifically *what a tree is not* – for instance, it is *not a bush*. The opposite of the concept *tree* is everything that is *not a tree*.

You may or may not consider it important to know whether you are measuring language usage or construct interrelationships. However, it becomes important in grids when only one pole of a construct is used (e.g. in rankings grids) and inferences are made about the constructs' polar opposites. It is tempting to infer that, because the *ideal self* is related to *kindness*, *sincerity*, *honesty* and *general wholesomeness*, it is definitely undesirable to be *unkind*, *dishonest* and *generally unwholesome*. This inference may be correct, but there are indications that this is not always so.

For instance, Mair (1967a) showed that constructs which appear to be bipolar in terms of their verbal labels are not always *used* in grids as if they are so. However, it is possible that Mair was obtaining more of these conventional as opposed to construct opposites because he supplied the construct poles to which the opposites had to be given. The construct poles might therefore be less easily used by the person than if both poles had been elicited. Although the rankings grid is most likely to give rise to unfounded assumptions about bipolarity, the ratings grid can also give rise to misinterpretation. In this form the construct poles are both used, defining as they do either end of a scale. However, here again the assumption of bipolarity is made. Because the construct *kind–unkind* is significantly correlated with *sincere–insincere*, the assumption is that *kind* people are *sincere* and *unkind* people are *insincere*. There is no way in which the person can say that *kind* people are *sincere* but *unkind* people can be both *sincere* and *insincere*. The only grid that really allows the person freedom to say how each pole of a construct relates to all other construct poles is the bipolar implications grid (*see* Chapter 3).

It also appears to make a difference how the opposite pole is obtained. One (emergent) pole of a construct is derived by asking how two of the elements in a triad are, in some important way, alike and thus different from the third element. The other (implicit) pole of that likeness can be obtained by asking how the third element is different from the two who are stated to be alike. Alternatively, the person can be asked what the *opposite* of the stated likeness is. If two people are alike because they are *kind*, you can either ask in what way the third element differs from these *kind* people, or what is the opposite of *kind*. Investigations of these two ways of obtaining the contrast pole of a construct are discussed later in this chapter.

No doubt people often give the conventional opposite of the construct rather than the opposite that the person actually 'uses'. It is therefore important that

opposites are obtained for supplied constructs as well as for elicited constructs, since this is part of the definition of the construct. Someone might supply you with the construct *charitable* and assume that it means the same to you as *charitable* does to me. However, for you the opposite pole may be *intolerant* and for me it may be *hold strong opinions*. For you to be *charitable* is good and for me it is undesirable. It was for this reason that Hinkle (1965) used both poles of each construct in his implications grid. He wanted to find out how constructs interacted, and not just how verbal labels are strung together.

It cannot be emphasized too strongly that the constructs that are used in most repertory grids have verbal labels attached to them. However, on occasion, as in laddering (*see* pages 39–43), some constructs may be elicited for which verbal labels have to be created 'on the spot'. This is one of the reasons why very superordinate, abstract, laddered personal constructs often take longer to 'verbalize' and need more words to identify them. As Kelly says, constructs are created before they are given verbal labels.

## They Have a Range of Convenience

This is not flogging a dead horse, but emphasizing one that is alive and kicking. As discussed earlier in relation to elements in Chapter 1, *the elements in any form of grid must be relevant to the constructs used.*

## Constructs Exist Within a Construing System

It is a good idea always to bear in mind that the constructs elicited for a grid only provide a very small glimpse of how a person construes the world. As Husain (1983) rightly says, not all constructs have only one opposite. Any single personal construct is part of a whole construing system – a network of constructs – and, as mentioned in Chapter 1, constructs differ in how they are used in different contexts. The context in which constructs may be used has been largely ignored by grid users up to the present time. Hinkle suggests that we think in terms of the *transcontextual identity* of a construct:

> It is important that a construct and its symbol not be equated. For example, what a person considers to be 'honest' in the context of criminals may be vastly different from 'honest' in the context of intimate friends. Since the subordinate and superordinate implications of 'honest–dishonest' could be expected to differ widely between these two contexts, in what sense could we say that the same construct is being used in each situation? The *transcontextual* identity of a construct can perhaps be defined as the points of identical subordinate and superordinate implications.
>
> (Hinkle, 1965, p.22)

Hinkle suggests that contextual confusions can give rise to implicative dilemmas and conflict. In grid terms, they can produce low construct interrelationships or ambiguous implication interactions. These ideas of

Hinkle have not been examined in detail to date. However, grids using situations or different selves as elements are moving in this direction, as in grids a person completes from the standpoint of 'as I am now', 'as I was in the past' and 'as I expect to be when . . .'. An example of a rankings grid using situations as elements is given in Chapter 3 (*see* pages 56–59).

## ELEMENTS IN A GRID

### Choice of Elements

A vital requirement for choosing elements in a grid has already been mentioned above and is contained in the Range Corollary. *Elements should be within the range of convenience of the constructs used*.

Constructs are the discriminations that we make between people, events or things in our lives. However, each applies only to a limited number of people, events or things. It is no use constructing a grid that consists of constructs to do with the youth of today and having one or two old people in among the elements – they may well be outside the range of convenience of the youth-of-today type of construct.

This does not mean that you somehow know the constructs when you choose the elements, but simply that the context determines the range of elements which can reasonably be used. If you want to find out a homosexual person's views of sex, then you will need both homosexuals and heterosexuals represented in the elements. However, if you want to find out a homosexual person's views of some aspect of homosexuality (e.g. sexual positions), then clearly the elements would need to be other homosexual people only. The range of convenience of specific constructs cannot always be accurately assessed by the good sense of the examiner. The person needs to be given the opportunity to *say* when a construct is inapplicable to an element.

A second important key to choosing elements is that *they should be representative of the area being investigated.* Kelly puts it thus:

> If the test is to indicate how the subject develops his role in the light of his understanding of other people, it is necessary that the other people appearing as elements in the test be sufficiently representative of all the people with whom the subject must relate his self-construed role.
>
> (Kelly, 1955/1991, p.230/Volume 1, p.161).

Although it is stated as a separate requirement, representation is really an elaboration of the range-of-convenience requirement. Yorke (1985) elaborated on the issue of elements being representative of the area being explored by stating that a key underlying assumption of a grid is that the elements reflect the context. He emphasizes this point and gives some examples in which the elements are not homogeneous, such as when the individual is asked to say 'What things come to mind when you think about teaching?'. For instance,

elements relating to 'teaching' may well include teachers as well as pupils or students. Using a triad of three students might elicit the construct *slip in and out of lectures* vs. *don't always bother to turn up*, but other 'teacher' elements would be likely to be outside the range of convenience of such a construct. Heterogeneous elements are likely to result in range-of-convenience problems as well as decreasing the validity of that grid.

This assumption of representativeness of elements was investigated by Mitsos (1958), who elicited constructs from one group of people using role titles and from another group using lists of names of personal friends. On retesting 3 months later, the group that used role titles produced significantly more identical constructs than did the group that used names of friends. However, Mitsos suggested that using role titles is likely to provide the *same* people to fit them on a second occasion, whereas after 3 months, friends can change. To investigate this further, Mitsos repeated the procedure with the 'friends' group after another 3 months (i.e. 6 months after the original testing), using the elements of the second occasion. The same low level of construct repetition was found. Mitsos also thought that role titles might produce more superordinate constructs, but there is no evidence that this was the case. Pedersen (1958) also found that 77% of his sample gave the same people to fit role titles after an interval of 1 week.

Defining the context to ensure homogeneity clearly does not mean that it must be restrictive. In fact, Kelly used interpersonal relationships as his context, and developed his role-title list to ensure adequate element representation. Using people as elements can hardly be described as restrictive. These role titles may be presented in the form of unspecified acquaintances, or they may be people named to fit specific role titles. Kelly suggested 24 role titles for his Role Construct Repertory Test (the Rep Test), from which all forms of repertory grid as we know it today evolved. However, the Rep Test was concerned solely with the elicitation of constructs which Kelly developed in 1955 for 'looking beyond the words'. The role titles that Kelly suggested for his Rep Test were as follows:

(1) a teacher you liked (or the teacher of a subject you liked);
(2) a teacher you disliked (or the teacher of a subject you disliked);
(3) your wife or present girlfriend;
(3a) (for women) your husband or present boyfriend;
(4) an employer, supervisor or officer under whom you worked or served and whom you found it hard to get along with (or someone under whom you worked in a situation that you did not like);
(5) an employer, supervisor or officer under whom you worked or served and whom you liked (or someone under whom you worked in a situation that you liked);
(6) your mother (or the person who has played the part of a mother in your life);

(7) your father (or the person who has played the part of a father in your life);
(8) your brother who is nearest your age (or the person who has been most like a brother);
(9) your sister who is nearest your age (or the person who has been most like a sister);
(10) a person with whom you have worked who was easy to get along with;
(11) a person with whom you have worked who was hard to understand;
(12) a neighbour with whom you get along well;
(13) a neighbour whom you find hard to understand;
(14) a boy you got along well with when you were in high school (or when you were 16 years old);
(15) a girl you got along well with when you were in high school (or when you were 16 years old);
(16) a boy you did not like when you were in high school (or when you were 16 years old);
(17) a girl you did not like when you were in high school (or when you were 16 years old);
(18) a person of your own sex whom you would enjoy having as a companion on a trip;
(19) a person of your own sex whom you would dislike having as a companion on a trip;
(20) a person with whom you have been closely associated recently who appears to dislike you;
(21) the person whom you would most like to be of help to (or whom you feel most sorry for);
(22) the most intelligent person whom you know personally;
(23) the most successful person whom you know personally;
(24) the most interesting person whom you know personally.

Kelly also devised a second list of role titles for the group administration of the grid. The second list has some differences from the first, including the important difference that it only has 22 elements compared with the 15 elements in Kelly's list for individuals.

Kelly suggests that a sheet should be provided which gives instructions for carrying out the task. For instance, it might start off as follows.

(1) Write your own name in the first blank here.
(2) Write your mother's first name here. If you grew up with a stepmother, write her name instead.
(3) Write your father's first name here. If you grew up with a stepfather, write his name instead.
(4) Write the name of your brother who is nearest your own age. If you had no brother, write the name of a boy near your own age who was most like a brother to you during your early teens.

(5) Write the name of your sister who is nearest your own age. If you had no sister, write the name of a girl near your own age who was most like a sister to you during your early teens.

*From now on do not repeat any names. If a person has already been listed, simply make a second choice.*

Kelly saw the role titles as covering six groupings, namely *self*, *situational* (e.g. Minister), *values* (e.g. ethical person), *family* (e.g. father), *valencies* (e.g. pitied person), *intimates* (e.g. old flame) and *authorities* (e.g. boss).

It is common practice for the elements to be chosen by the grid designer, and that designer can obviously change Kelly's role-title list as much as he or she wishes in order to meet the requirements of a particular situation. In most cases, far fewer than 24 elements would be used, and role titles are by no means mandatory. It is worth bearing in mind that the use of role titles is likely to lead to more evaluative constructs being elicited because they include such value-laden words as 'enjoy', 'like' and 'dislike'. It is fairly obvious that the elements chosen to represent a given context will influence the types of construct elicited. However, we know that, when designing a grid, we are only gaining an insight into the 'language' of the client in that particular context – we are only eliciting a small sample of that person's construing of the world. Thus if one wants a grid that is 'value-free', one selects the elements accordingly. And it must be remembered that we are only eliciting constructs to which the person has attached verbal labels.

The elements that are used in repertory grids can be almost anything – it all depends on the context to be explored. For instance, if you want to find out how people construe toothpastes, the elements will be different types of toothpaste that fully represent the range of toothpastes available. R. Neimeyer (1985) used different stages in life which the client construed as important as elements in his 'biographical grid'. R. Neimeyer and Stewart (1996) give further examples of its usage. Elements can be specially designed. For example, Fransella (1978) had a standard body shape (one for men and another for women) altered by an artist to range from the extreme thinness of the person with anorexia nervosa to extreme obesity. Some other examples of the wide variety of elements that have been used include photographs of people (the first to use these being Bannister, 1962a), feelings (Fransella & Adams, 1966), situations (Fransella, 1972), diseases (Orley & Leff, 1972), rooms (Honikman, 1976), photographs of people and Rorschach cards (Salmon, Arnold & Collyer, 1972), shops (Hudson, 1974), foreign countries (Lemon, 1975), classes of Spirit in Ganda mythology (Orley, 1976), brightly coloured stand-up models (Salmon, 1976), architectural maps (Stringer, 1974), an artist's paintings, drawings of different motion phenomena in physics (Winer & Vázquez-Abad, 1997), and perceptions of different scents (Williams, Whittlestone & Martin, 1992). Some of these examples and many others are listed in Chapter 8.

There are many more elements besides these, and who can say how many there *could* be? As with all of the methods for eliciting personal constructs that are discussed in this chapter, there is no requirement that the resulting constructs should be used in some form of repertory grid. The information gained can be of sufficient use of itself.

One different type of element is that described by Ryle and Lunghi (1970) for their dyad grid, where each element is a relationship between two people (e.g. Fay's relationship to Don, Don's relationship to Fay, Fay's relationship to Richard and his relationship to her). The number of elements in this 'dyad' grid will be partly determined by the number of people who are considered to be important in that person's life. In another context, Ogilvie and Ashmore (1991) have suggested that the dyad element is important when examining our conceptions of 'self' within a personal construct context. Ryle and Breen (1972) elaborated on their original dyad grid by describing the double dyad grid in which two people (e.g. a married couple) construct the dyad grid jointly. However, the elements remain single relationships as in the dyad grid. There are thus four grids in the double dyad grid. Each member of the pair completes a grid with the same constructs and elements – first a version for the self, and then a version predicting the other's responses. In this way it can be seen how the two members of the pair differ or agree with regard to their view of their own and other relationships, and areas of maximum mismatch and greatest mis-prediction can be identified.

## The Wording of Elements

Wright and Lam (2002) pointed out that there has been virtually no discussion about the wording of elements. Although there are many examples of elements other than individual people being used, as indicated above, the vast majority of studies have used role titles. With these, the wording is relatively easy. However, these authors wanted to find out how grids might be used in an organizational context, in particular with regard to performance appraisal. They first tried using components of the appraisal system, such as 'PA annual interview' or 'PA form design'. However, they soon discovered that their nine elements were far too heterogeneous for constructs to be elicited. One interviewee commented that he was being asked to compare a piece of paper with what he actually does. The elements were representative of a system, but were at different levels of construing from the participants' point of view. They had a range-of-convenience problem. It would be perfectly reasonable to have a grid made up of components of the 'performance appraisal interview' or components of the 'performance appraisal form design', but these together create a range-of-convenience problem on some constructs. Wright and Lam therefore changed from 'system' elements to elements that related to the 'doer'. That is, the elements were changed into 'doing' words. Thus 'PA annual interview' became 'attending the annual interview'. This is an example

of the importance of elements being homogeneous and representative of the area to be explored from both the user's and the designer's point of view.

## THE NATURE AND TYPES OF CONSTRUCTS IN A GRID

### Basic Assumptions

Kelly states six assumptions that underlie his Role Construct Repertory Test (Rep Test) as it was originally called, but which are equally applicable to construct elicitation in general.

(1) The constructs elicited should be *permeable*. This means that the person is able to apply the constructs elicited to new people and interpersonal situations as well as the three elements from which the construct has been elicited. 'We hope that the subject reveals, in taking the test, those channels through which new experiences, as well as old, may run' (Kelly, 1955/1991, p.229/Volume 1, p.160).
(2) *Pre-existing constructs* should be elicited. Although the person may, on occasion, develop a new construct during the process of elicitation, it is assumed that this does not often happen, and that there is 'some lingering degree of permanence' in the constructs elicited. The issue of reliability is discussed in Chapter 6.
(3) *The verbal labels* attached to the constructs should be communicable. That is, the examiner should have some reasonably accurate idea of what the person is getting at. It is often necessary for the examiner to test the accuracy of his or her understanding by discussing it with the interviewee.

The following assumptions are explicitly about the use of people as elements.

(4) The constructs elicited should:

> represent the subject's understanding, right or wrong, of the way other people look at things. If the subject gives only responses which describe his relationship to other people as if they were unthinking animals, the test has failed to elicit *role constructs*. The subject's measure of understanding of other people may actually be inadequate or preposterous but, if it is the basis of a real social interaction with them, it is indeed related to his role construct system.
>
> (Kelly, 1955/1991, p.230/Volume 1, p.161)

(5) *People should not dissociate* themselves entirely from the elements or from the constructs elicited. They must be able to see *themselves* somewhere along the construct dimensions.
(6) The constructs elicited should be explicitly *bipolar*. As has already been stated, by saying what a person or thing is, one is also stating that which he, she or it is not.

## Not-So-Useful Constructs

Not all constructs elicited are useful in a particular grid format. Kelly quotes Hunt (1951) as having suggested ways of dealing with this problem.

### *Excessively Permeable Constructs*

Although Kelly states that constructs elicited should be permeable, they should not be excessively so. For example, if a person says 'These two are alike, they are both men', Hunt suggests that the grid administrator should record the response but say 'That is one way in which they are alike. Can you tell me some psychological characteristic in their both being men that makes them alike, or can you tell me any *other* way in which they are alike?'. Such a construct discrimination would not always be rejected. To say that two elements are alike because they are men and the third is different because she is a woman is a vitally important difference. You may well decide to accept such a construct and use it in the grid you are designing because it has important implications for the grid's purpose.

### *Situational Constructs*

If the client says 'These two are alike; they're both from the same town,' the procedure described above for excessively permeable constructs can be used.

### *Excessively Impermeable Constructs*

The person may say 'These two are tool makers and the other is a die maker'. Again, the same procedure as that described above can be used.

### *Superficial Constructs*

The person may say 'They both have the same colour eyes'. Again, proceed as described above.

### *Vague Constructs*

'They're both OK.' The examiner can ask the person to explain further and to give possible examples of other people who are OK. Or he or she can ask the person to state what characteristic it is that makes them OK.

### *Constructs Which are a Direct Product of the Role Title or Element*

'Both are hard to understand'. The examiner may then say 'Is there something about their being hard to understand which makes them seem to be alike?'.

These are just some ways of dealing with such constructs. However, it must always be borne in mind that what seems superficial or vague to you as the examiner may be neither superficial nor vague to your interviewee. An easy relationship and a free flow of discussion between examiner and interviewee is the best basis for construct elicitation.

## People as Constructs

Kelly suggested that 'the self' can be seen as both a construct and an element. He says of the self as a construct:

> . . . the *self* is, when considered in the appropriate context, a proper concept or construct. It refers to a group of events which are alike in a certain way and, in that same way, necessarily different from other events. The way in which the events are alike is the self. That also makes the self an individual, differentiated from other individuals.
>
> (Kelly, 1955/1991, p.131/Volume 1, p.91)

Kelly also talked about the self being a construed event or object (Fransella, 1965, personal communication): 'Assuming the self I am talking about when I refer to myself is an object, I am led to look for the dimensions in terms of which I suspend myself in psychological hyperspace'. Thus the self can be construed as an element that has a place in many personal constructs.

Mair (1967b) demonstrated that there are problems with using 'whole figures' such as *like my father* as constructs. Thus *father–not father* can be used as a construct dimension along which other people are placed as being *father-like* or *not father-like*. However, 'father' can also be an element construed in terms of, say, the construct dimension *strong in character–weak in character*. These are, of course, asking for different ways of construing 'father', so it is not surprising that they do not produce clearly similar results concerning how 'father' is construed. *Self* as construct is not necessarily used in a grid in the same way as 'self' as element. Mair and Boyd (1967) found that on the ranked grid, the direct ranking of 'self' as element correlated by 0.47 with rankings of *self* as construct, but the range of element/construct correlations for *self*, *mother* and *father* was from $-0.58$ to 0.89. For instance, it is a different task to think of oneself (as construct) in relation to a number of people as opposed to deciding whether one is more or less like them in terms of some other construct.

Fransella and Crisp (1979) used four 'weight' constructs and elements with the same wording with a 'normal' group of people and those diagnosed as 'neurotic'. Figure 2.1 shows the differences in distances between the four element/construct pairs for the two groups (a difference of zero equals identity). The greatest distance between element and construct pairs is for 'me thinner' for both groups.

In their study of children's construing, Jackson and Bannister (1985) used the element/construct discrepancy as a measure. They suggested that 'a marked discrepancy is taken to indicate that the child has difficulty in aligning

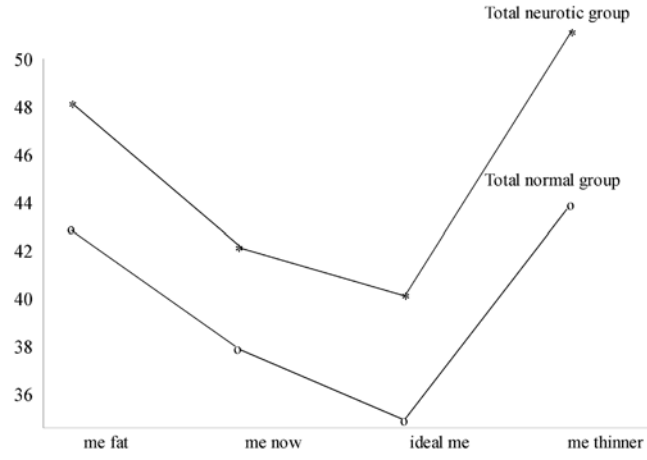


**Figure 2.1** Four element/construct mean difference scores in a rank-order repertory grid. Reproduced from Fransella and Crisp (1979) by permission of The Royal College of Psychiatrists

the individual judgements that he or she makes on particular constructs with a superordinate view of their own personality' (Jackson & Bannister, 1985, p.73).

A sizeable difference between the person as construct and as element, as shown in the Fransella and Crisp study above, may be an indication of conflict or ambiguity surrounding this. In other words, the discrepancy can indeed be used as a measure, just as Bannister used reliability (or lack of it) as a measure of construct system integration.

In summary, apart from being used as a measure, it may in general be better to use multi-attribute things as elements, as Mair (1967a) suggests, and to leave more single-attribute things to function as constructs.

## Order of Construct Elicitation

McDonagh and Adams-Webber (1987) used the bipolar implications grid (*see* Chapter 3) to investigate whether personal constructs that are elicited early on are subjectively more important and more meaningful than those that are elicited later. They found no overlap in terms of the subjective rankings of importance of the first five constructs elicited and the last five elicited. Furthermore, the first five constructs elicited and regarded as important were more personally meaningful to the people concerned. Replication of these findings would have implications for the number of constructs elicited for any particular grid.

## WAYS OF ELICITING PERSONAL CONSTRUCTS FROM 'ELEMENTS'

### Eliciting From Triads of Elements

Kelly originally described six ways in which one can elicit constructs, the first of which is the *Minimum Context Card Form*. Here the person is first asked to give names to role titles such as those listed by Kelly. Three of these elements are presented and the person is then asked to specify *some important way in which two of them are alike and thereby different from the third*. The issue of the best way to elicit the implicit pole of a construct is discussed later in this chapter.

The *Self-Identification Form* is a modification of the Minimum Context Card Form, in which the element 'myself' or 'like me in character' is always included in the triad. This ensures (as far as is possible) that all constructs elicited are personally relevant.

The *Personal Role Form* is similar to the Self-Identification Form, but the instructions are now along the following lines. 'Suppose that the three of you were all together by yourselves for an evening. What kind of place might it be? What would happen? How would you yourself be likely to be acting? How would each of the others be likely to be acting?'. Many other situations or conditions could be used, and the Personal Role Form allows the person considerable flexibility of reply.

One other way of using the triads that Kelly suggests is the *Sequential Form*. Here the elements are presented as in the Minimum Context Card Form, but they are presented systematically by changing one element in the triad each time. For example, after presenting elements 1, 2 and 3, number 1 is removed and number 4 is substituted for it, and so on. Obviously this will be quite a lengthy process if many elements are involved.

Before leaving the discussion of the use of triads of elements for elicitation, the question arises as to how many triads it is appropriate to use. Some say 'it is up to the grid designer'. There are indeed no set rules. Although it may seem desirable to use all possible groupings, the client may well have fallen asleep before you have finished, because the potential number of triads can be prohibitive. For example, with seven elements there are 35 possible triads, and for 10 elements there are 120 possible triads. In practice, the number of triads used will often be determined by the time available. In the research context, Bell (1990) suggests using an experimental design for triad numbers, details of which can now be found in Leach *et al.* (2001), who provide an example of how this can be done. From the 30 possible triads in a grid of 10 elements, they suggest randomly selecting the number of triads thought to be necessary in a particular context.

#### *Eliciting the Second Pole of a Construct*

Epting, Suchman and Nickeson (1971) suggested an alternative way of eliciting the contrast pole, by asking the person for the opposite to the likeness

pole of the construct (the 'opposite method'), rather than asking how the third person in the triad differed from the other two (the 'difference method'). The argument against the 'difference method' is that the interviewee may give the pole of another construct instead of the contrast to the elicited pole. Yorke (1983) describes it as sometimes producing 'bent' constructs. Asking directly for the opposite of the elicited pole ensures that there is no mistake here. What Epting *et al.* (1971) did was to conduct some research comparing the 'difference method' for eliciting constructs with the 'opposite method' to determine whether they produced different results. They concluded that the 'opposite method' elicited more clearly bipolar constructs than did the 'difference method'.

Hagans, Neimeyer and Goodholm (2000) pointed out that the pole of the construct elicited by the 'opposite method' may not directly apply to any of the elements in the grid. However, we are talking about a bipolar construct, and the third element was there when the similarity was elicited, so may well play a part in the verbal label elicited. Hagans and colleagues made the important point that asking for the opposite of the elicited pole of a construct means that the rating is more likely to be extreme than if the person is asked to state how the third person in the triad is different. They also argue that as a result of having a more extreme opposite pole to a construct, the client may well not spread the ratings so widely. For instance, a person might give an extreme rating of, say, 7 regarding their stepfather if the opposite to *intelligent* is *not so intelligent*, whereas the rating might only be 5 if the opposite is *unintelligent*. It is important to bear this in mind when interpreting the results obtained from a grid.

Further discussion of the advantages and disadvantages of the difference and opposite methods follows after the next section on elicitation by dyads.

## Eliciting With Dyads Of Elements

Kelly based his triadic elicitation method on his theory of how constructs are first formed. However, since one is eliciting constructs that are already established in the person's repertoire, there is no reason why *three* elements need be used. The triad is not even necessary to ensure that the opposite of the emergent pole will be obtained. There is nothing sacrosanct about the triad. It is equally reasonable to use two elements for elicitation. Indeed, Kelly's triadic method of elicitation has been found to be too complex for children under 10 to 12 years of age (Salmon, 1976), individuals with learning difficulties (Barton, Walton & Rowe, 1976) and the deaf (Baillie-Grohman, 1975). More details of these are given later.

As has already been mentioned, Ryle and Lunghi (1970) use interpersonal relationships as elements in what they call their dyad grid. For instance, the elements might be self-to-Peter, Peter-to-self, self-to-Paul, Paul-to-self, and so on. However, in this section we are talking about elicitation using two separate

elements. Confusion arose when people used the word 'dyad' for this process too.

Landfield (1971) found that using only two elements was a less confusing task for those participating in his psychotherapy research. From a list of important people in the client's life, the interviewee was asked to consider just two individuals, chosen by Landfield: 'Think of these two people . . .. Are the two people alike in some one way? Or are the two people different in some one way?' (Landfield, 1971, p.161). If the two people are said to be *different*, then the construct is labelled by those differences. If they are seen to be *alike*, the client looks at the list of remaining people and chooses one person who is different and says why that individual is different from the other two.

Keen and Bell (1983) have described another method for eliciting constructs from two elements, which they also refer to as a 'dyad'. The procedure described by these authors is as follows.

(1) Establish the first element with the person which is in the context of the inquiry.
(2) Then ask for the name of a second element which is different from element 1.
(3) Ask how these two elements differ (construct 1).
(4) Name another element to which construct 1 applies (element 3).
(5) Name another element that differs from element 3 in a different way to construct 1 (element 4).
(6) Ask in what way elements 3 and 4 differ (construct 2).
(7) And so on.

## Dyads vs. Triads/'Differences' vs. 'Opposites'

Several studies have now been conducted which looked at aspects of the effects of using dyads vs. triads and asking for the 'difference' or the 'opposite' when eliciting constructs (e.g. Caputi & Reddy, 1999; Hagans, Neimeyer & Goodholm, 2000). More recent research investigating several methods of element usage has been conducted by G. Neimeyer *et al.* (2002). They explored the following.

(1) *Triadic difference*: presenting three elements at a time and asking 'How are two alike in some way, but different from the third?'.

It is to be assumed that the way in which the third element differed was specifically asked for.

(2) *Triadic opposite*: presenting three elements at a time and asking 'How are any two of these alike in some way?' followed by 'What is the opposite of that?'.
(3) *Dyadic difference*: presenting two elements and asking 'How are these two alike or different?'. If a difference is given, this is taken to be the contrast

pole of the construct. If a similarity is given, the person is asked to look at the remaining elements to see whether one represents a difference.

(4) *Dyadic opposite*: presenting two elements and asking 'How are these two alike or different?'. If a difference is reported, this specifies the two poles of the construct. If a similarity is reported, the person is asked for the opposite of that similarity.

Two other variables were then added. One was concerned with direction of rating (rating all elements on each construct in turn, or vice versa) and the other was concerned with whether the elements were all positive or negative or mixed in valence. These two variables are discussed in Chapter 3. The upshot of this major research inquiry was the identification of some very complex interactions between all of these variables. Consequently, it is not really possible to draw any firm conclusions about these aspects of element usage.

The 'difference' vs. 'opposite' methods and the triad vs. dyad methods of construct elicitation are discussed again in relation to reliability in Chapter 6.

### Eliciting With Single Elements

A clear example of eliciting with single elements is the *dependency grid* described in Chapter 3. There is only one element there, namely the self. Similarly, it can be said that in Hinkle's implications grid (1965) the self is the only element, since it is the individual who relates construct to construct. In another context, Landfield, Stefan and Dempsey (1990) used the self as an element when they asked people to write down their most positive and negative characteristics and then to give the opposites of these.

## ELICITING PERSONAL CONSTRUCTS IN WAYS OTHER THAN FROM 'ELEMENTS'

### Kelly's Other Elicitation Procedures

Kelly did not limit himself to describing elicitation by the use of triads of elements, but suggested that one could use many more, as in the *Full Context Form*. For this method, all elements are written on separate cards and spread out in front of the person, who is then asked to think of important ways in which groups of the people are alike. When the first two cards are selected, the person is asked in what way the two cards are alike. As subsequent cards are added, the person is occasionally asked whether it is still the same category as for the first two cards. If a card is taken away, the person is also asked if the same category is still being used.

An elaboration of this is the *Full Context Form with the Personal Role Feature*. For this method, all element cards are laid out before the individual. When all of the cards have been sorted into piles, the 'myself' card is placed by each pile

and the Personal Role questions are asked for each. These are posed in the form 'Suppose you were to spend an evening with this group, what would be likely to happen?', and so on.

The Personal Role Form seems to be a way in which the client and the interviewer can discuss how the client sees his own and others' personal interactions. It is in the course of this conversation that the client will reveal the construct dimensions he uses, which can be noted by the interviewer.

## Eliciting From Self-Characterizations

This is Kelly's truly qualitative method of assessment and relates to his 'first principle': 'If you do not know what is wrong with someone, ask them – they may tell you' (Kelly, 1955/1991, p.322/Volume 1, p.241). It is by no means as structured and 'tidy' as the methods mentioned previously. However, as a means of coming to understand something of the constructs used by another to construe the world, it is well worth considering. The instructions for this method are as follows.

> I want you to write a character sketch of Harry Brown, just as if he were the principal character in a play. Write it as it might be written by a friend who knew him *intimately* and very *sympathetically*, perhaps better than anyone ever really could know him. Be sure to write it in the third person. For example, start out by saying 'Harry Brown is . . .'.
>
> (Kelly, 1955/1991, p.323/Volume 1, p.242)

The person would, of course, substitute his or her own name for the mythical Harry Brown. Kelly chose the words with care. The term 'sketch' was intended to suggest that general structure rather than elaborate details were to be described. The emphasis on the third person was intended to indicate that it was not to be a chronicle of faults or virtues, but rather to be a view of the whole. Other phrases were calculated to reduce the threat implicit in such an activity, and to enable the person to give speculations as well as facts.

Epting, Probert and Pittman (1993) described the six steps that Kelly outlined in his 'technical analysis' of a protocol to identify the constructs embedded in the text.

(1) Observe sequence and transition (make notations about the sequence of the content and transitions from topic to topic).
(2) Observe organization (note the opening and/or topic sentences of the paragraphs, along with how the paragraphs are developed in relation to those opening themes).
(3) Reflect against context (analyze each statement in relation to the total protocol).
(4) Collect terms (collect terms of similar meaning together to discern the nature of an important but poorly verbalized construction).

(5) Shift emphasis (deliberately shift the original emphasis placed on terms and sentences to see if fresh perspectives will emerge).

(6) Restate the argument (try to restate the main themes in your own words as if playing the role of the client).

(Epting *et al.*, 1993, p.86)

There are four more analyses that can be undertaken after these technical ones. First, one can look at the areas within which the person describes him- or herself; one can look for themes. This can be followed by a 'dimensional analysis', which means making notes of the actual construct dimensions that the person is using. Finally, the interpreter of the self-characterization subsumes the content within the theoretical 'professional constructs'. R. Neimeyer (1993) also provides a useful discussion of the self-characterization, and gives further guidelines for its analysis.

If particular areas of life are of interest, then the wording can be altered. For instance, the sketch can be of the person as he was before he was ill, or as he will be after this episode in his life, or as he will be after this period of his education, or in ten years time, or in a particular professional role (e.g. as a teacher), and so on. Davis, Stroud and Green (1989) have shown how the self-characterization can be used to look at mothers' construing of children with intellectual impairment. Jackson (1988, 1990) has used the self-characterization when working with problem adolescents, and Fransella (1981) demonstrated its use as the major therapeutic method with one client. Although relatively little work using the self-characterization has been reported, it plays an important part in the work of many personal construct practitioners, particularly clinical work. Of all the methods of elicitation that have been mentioned so far, the self-characterization imposes the least structure or restrictions on the individual, and provides a wealth of insights into the world of a person – including oneself.

As an extension of the self-characterization, Feixas and Villegas (1991) described how one can identify and analyze personal constructs in such things as letters or other similar texts. They describe how one can select and elicit both constructs and elements and transform these into a cluster analysis. Villegas (2003) has taken this a step further by working with transcripts from psychotherapy sessions.

Ravenette's ways of working with children will be discussed later, but he also elaborated the self-characterization method by using Bugental's (1964) work on the question 'Who are you?'. Ravenette (1999a) describes two additional questions to be asked of a child, namely 'What sort of person are you?' and 'What would (significant others) say about you?'. Ravenette says of these questions that 'Their real value lies in opening up the possibility of going beyond the verbal description of an individual's ''sense of self'' into, for want of a better expression, the person's ''sense of being''' (Ravenette (1999a) pp.208–209). He suggests that exploration should continue to find out what the contrasts are to some of the constructs elicited by the questions, to use

laddering and pyramiding (see pages 39–44) to help elaboration, to determine in what contexts the various statements make sense, and to find out how important the statements are to the child.

## Eliciting From Other Written Material

Working with children, Ravenette (1964) found that the triadic method elicited constructs such as *old–young* and *girl–boy*, whereas a much wider range of constructs emerged when the same children were asked to write short essays about children and adults they liked and disliked. As Bannister and Agnew (1977) and Piaget before them have shown, children take time to develop a sense of 'self', so their personal constructs are necessarily more concrete before this.

The Role Category Questionnaire (Crockett, 1965) requires the person to list eight different individuals known to them, and next spend 3 minutes describing each of these individuals as fully as possible in writing. The eight written descriptions are then examined for the number of independent constructs used. This number is used as an index of cognitive differentiation (*see* Chapter 5). Crockett (1982) summarizes a number of studies which show that his method has high inter-rater reliability, substantial test–retest reliability, and independence from verbal fluency and intelligence test scores. It is a pity that this technique has not been used much other than to count constructs, as it does seem to be capable of producing qualitative data with other practical uses – for example, to find out what people like and dislike about their colleagues and the organization in which they work (Coopman *et al.*, 1997), and to develop interpersonal construing and communicative ability in a police force (Applegate *et al.*, 1989).

Epting, Probert and Pittman have described ways of eliciting personal constructs that 'aid the subject in articulating and representing the lived experience of the construct within the total context of the construct system' (Epting *et al.*, 1993, p.89). They describe in some detail Gendlin's (1977) 'focusing' technique, which Epting (1984) had previously seen as a way of gaining insight into some of a person's poorly articulated (perhaps preverbal) constructs. They go on to describe their use of storytelling to elicit personal constructs. In contrast to the triadic elicitation of personal constructs, they say that this method 'is more in keeping with the playful and experimental elicitation techniques used by Kelly' (Epting *et al.*, 1993, p.92). It takes the form of a game played by a group of people who tell each other stories about important people in their lives. The game is called 'Let's just say,' and the procedure is such that the constructs elicited can be placed in a grid. Alternatively, Epting and colleagues point out that the game can be used after the completion of a standard grid with triadic elicitation of constructs. They cite the example of a client being asked to consider a situation which elicited her construct *polite–rude* and to say how her brother would react as a *polite*

person. She was then asked to say how her father would react as a *rude* person, and so on.

## Eliciting Personal Constructs by Interview

In a study of 26 people with learning difficulties, with ages ranging from 15 to 55 years, Barton, Walton and Rowe (1976) used the 'talking about the elements' technique and noted down the constructs used (see also Salmon, 1976). However, they pointed out the necessity for checking on the meaning that these constructs have. Some people with learning difficulties pick up words or phrases and use them without really having any clear idea of their meaning. This study confirms the impression that people of below average intelligence tend to use behaviours instead of more abstract personality characteristics as ways of describing others. For instance, one reply to the question 'What sort of person is this?' (element) might be 'He is the sort that bumps into you when you pass him'. This can then be elaborated by asking 'What sort of person is likely to do that?'.

Leitner (1985) was concerned that most users of grids were not getting down to the central values of clients. He outlined six ways of attempting to elicit these core values in interview.

(1) *Earliest memories* – with the first being an indication of a combination of events, dreams, and then later, events that have amalgamated into the present memory, which is to be regarded 'as if' true.
(2) *Tombstone* – the client is asked to say what he or she would like to have written on their tombstone that would best describe their life. As Leitner points out, this comes from *transactional analysis*.
(3) *Constructions of God* – these are thought to be likely to relate to some core construing of the client.
(4) *Significant* (*life-turning*) *events* – such events are likely to be construed in superordinate ways.
(5) *Dreams* – these are often used to provide insight into a person's construing. Kelly spells out many types of dream, one of which is the 'mile-post' dream. He says of these vivid and realistic dreams:

> The span of material . . . suggests the comprehensiveness and possible superordinateness of the construction portrayed. Our experience, as well as our theoretical position, would lead us to believe that they mark a transition in the underlying construction of the client.
>
> (Kelly, 1955/1991, p.1044/Volume 2, p.339)

(6) *Fantasies* – these can be used to elicit core construing of the client.

Leitner then goes on to explore the constructs elicited in these ways, and compares them with constructs elicited using dyads of role titles relating to family and acquaintances. The constructs elicited by the two procedures were

compared by asking the participants to rate each construct on a 10-point scale according to the question 'How important is this construct for how you think about yourself and others?'. Statistical evidence indicated that most participants regarded the grid-elicited constructs as less important than those elicited by interview. The most important constructs elicited by interview were those discussing God, mile-post dreams and significant life events. The least important constructs were those elicited when talking about the earliest memories.

Jones (1993) designed what she calls the 'Core Process Interview', which she used after completing the resistance-to-change grid. This method enables people to look at how their lives have progressed and the choices that they have made. The various parts of the interview include 'my life till now', 'other happy times' and 'times of fulfilment'.

## Eliciting Using Non-Verbal Materials

Ravenette (2003) has described how he uses pictures and drawings to elicit constructs from children. Oval shapes can be drawn along the top of a grid, and the child then fills them in to create portraits of the people he wants to use as elements. Denicolo (e.g. Denicolo, 2003) has developed a variety of non-verbal methods for eliciting personal constructs from adults. One method involves the drawing of a snake (or a river, for those who do not like snakes too much). At each bend of the snake the person notes a particular event that influenced the direction which his or her career took. This method can also be used in many other contexts equally well.

Dalton (1996) has described how she and other therapists working with young people with little or no language have used drawings from Wilson's *Games Without Frontiers* (Wilson, 1988). One picture that Dalton called 'Tree People' shows stereotyped figures in various poses on branches of a tree. Children who had been unable to begin to describe themselves and others verbally were able to describe the figures. For instance, one figure was described by one child as *having fun* and by another as *going mad*.

Humphris (1988) worked with children as young as 4 years of age. She was interested in whether children as young as this were aware that people thought they had a speech problem and, in turn, how such children were perceived by their teachers. To capture the children's interest, she said that she was making a book about them. She let each child choose part of the school grounds that he or she liked. She then photographed the child using a polaroid camera. As the photograph developed in front of the child, she said 'Your photo will be the very first page of the book we're going to make. The book is about you. It's your book'. The book was made up of transparent wallets, and the photograph was placed in the first wallet. The constructs were also pictures with verbal labels and the child's own name inserted. Thus there would be two pictures of 'John' – one was 'John is happy' and the other was

'John is sad'. Whichever picture John chose as being like him was placed in the next transparent wallet.

The teachers and parents also carried out the same task. They were told that the child had made a book about him- or herself, and they were asked to choose the cards, one from each pair, as they thought the child would have done. One finding was that the children with speech problems did not regard themselves as being any different from their peers, but were viewed by teachers less positively on all constructs compared with children who were not regarded as having speech problems.

Baillie-Grohman (1975) elicited constructs from deaf children in a highly imaginative way – she used mime. She first argued that deaf people with little or no language nevertheless have complex construct systems. However, the discriminations between events in their lives are much finer than those they can express verbally. Since many deaf people communicate quite satisfactorily through facial expression, mime, gesture and signs, these were the media she used.

Her approach and method are described here in some detail as an example of how, with imagination, the grid method can be modified to break new ground. First, the 14 children were given details of what they were going to be required to do on the following day. Everything was explained until all of them appeared to understand the procedure. The next morning, when all 14 children were present, four constructs were elicited, with their opposites, from each child in the following way. After a preamble about the task in hand, each child was asked the name of *one* person he or she knew. They were next asked about the sort of person this was, and were then asked to tell the person next to them what this person was like.

After this, the children were asked to write down the names of *two* people they knew and to think about how these people differed. When they had been able to find one way in which the two people differed, they had to tell the person next to them what this difference was. After the elicitation of the constructs, each child in turn mimed their own construct.

In order to capture the non-verbal moment, an artist was present whose job it was to sketch the 'meaning' of the mime. With each mime, all of the children were asked to think of a person who showed that behaviour. Thus there was a pool of elicited constructs and each person had provided someone they knew who shared the characteristic of the person who was mimed. Figure 2.2 shows one such drawing of a construct. This example highlights the point (often made) that it is repertory grid *technique*.

Although in this chapter we are only talking about constructs and elements, and not grids themselves, we make an exception here. The following is a description of the Baillie-Grohman grid which can only really be understood with reference to how the constructs were elicited. Baillie-Grohman's deaf children completed both an individual grid based on personally elicited constructs plus *easy to talk to* and *difficult to talk to*, and a 'common' grid

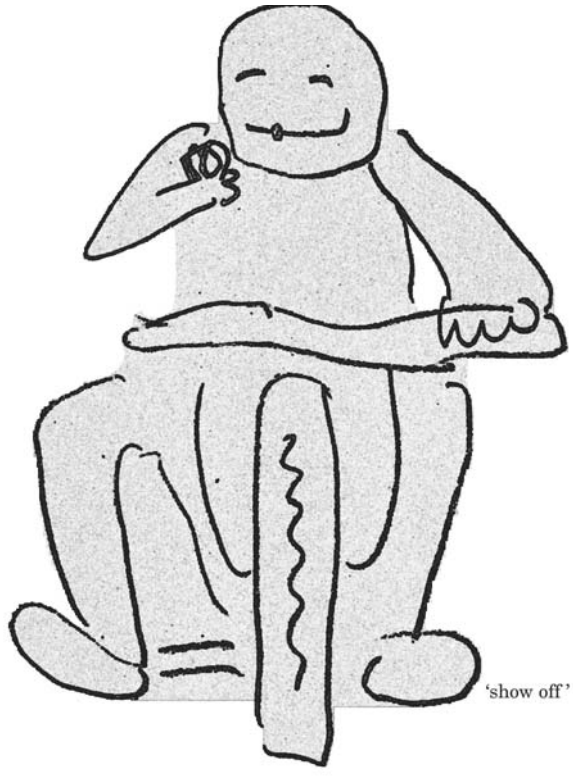


**Figure 2.2** Drawing of personal construct mime. From Baillie-Grohman (1975)

consisting of the nine most frequently occurring constructs plus *the same as me*. To complete the personal grid, each child was presented with their first sketch and asked if they remembered who they were thinking about at the time, and the characteristic that they were portraying in mime. The child was then asked to think of the person who was the first element (these were role titles, such as mother, teacher I dislike, and so on) and to indicate, by placing the element card in the appropriate box on the table, whether they were a little bit, fairly, much or very much like the construct. The group grid was repeated in the same manner.

There were inherent difficulties in this procedure, as Baillie-Grohman points out, the main one being the problem of attaching a verbal label to the sketched mime. However, if we are ever going to get beyond our verbal screen and find out how non-verbal human beings think about their worlds, we are going to have to experiment in this way.

As can be seen, there is no rigid set of rules, which makes the repertory grid a highly flexible device that enables one to elicit constructs and quantify them

in some way. Without the use of personal construct theory, the technique tends to become rigid. However, when we start off with the premise that all living creatures derive meaning from their world by seeing similarities and differences between events and construing their replications, then we have a truly flexible measuring instrument at our disposal.

## Eliciting by Computer

Bringmann (1992) provides a useful list of advantages and disadvantages of using a computer program for elicitation of personal constructs and completion of a grid. Most of the programs available can only be used for elicitation of constructs. Those that can also be used for completing a grid are discussed in Chapter 4 and listed in the Appendix. Bringmann cites what he considers to be the advantages of eliciting by computer.

(1) It reduces or eliminates any effect that different environments may have on the process. This is more relevant to those carrying out research than to the practitioner. For the latter, the relationship with the client is known to be an important part of the elicitation process, making this a disadvantage.
(2) It reduces the time needed to elicit the constructs and complete the grid.
(3) The programs usually provide the means for the client to experiment with both elements and constructs that form the grid.
(4) Some programs enable the user to evaluate the element and construct interaction as they complete the grid. This may be useful if it seems that, for instance, many constructs are highly related to each other. In grid terms, this means that the user can increase the differentiation in their grid if they so wish.

The disadvantages cited by Bringmann are as follows.

(1) Many people do not like using computers. If this is so, they may want to finish the job as quickly as possible.
(2) Many people lack computer skills and so make errors. This in turn may cause them to become frustrated or even panic.
(3) The programmers have differing levels of programming skills, and this may lead to problems with data analysis.

There are now several programs that enable the user to elicit constructs and sometimes to analyze the resulting grid. However, there are disadvantages in addition to those mentioned by Bringmann. Several of these programs run on DOS or the Mac, and not on Windows, and if they do run on Windows, some have problems with Windows XP. If an online program is used, not everyone has a fast Internet connection, which makes the process expensive and frustrating. Finally, and perhaps most important of all, the programs that are currently available have a short shelf-life in that they are unlikely to be updated once their creators have retired. In view of all this, we are not naming

any programs for the elicitation of constructs. As Bringmann (1992) and Sewell *et al.* (1992) point out, to date there have been few data to show whether this process is similar to or different from triadic elicitation.

An account of one such interactive computer program can be found in Shaw (1982).

## ELICITING CONSTRUCTS FROM CONSTRUCTS

### By Laddering

This is a procedure that has been described by Hinkle (1965) which is said to elicit increasingly superordinate constructs – that is, constructs of a higher order of abstraction than those elicited from the original triads or dyads of elements.

This widely used procedure has generated some controversy, much of it to do with Hinkle's definition of superordinacy and subordinacy. Hinkle gives his definitions thus:

> In an implicative relationship between two constructs, that construct which implies polar positions on the other construct is called the *subordinate construct*; that construct whose polar positions are implied by the other construct is called the *superordinate construct*.
>
> (Hinkle, 1965, p.23)

Many authors (e.g. ten Kate, 1981; Caputi, Breiger & Pattison, 1990) have argued that if one thing implies another, the implier is more important than (is superordinate to) the thing that is implied. As early as 1969, being aware of this conflict, Fransella started describing only laddered constructs as superordinate, and this procedure has been followed by many others. The fact that the way in which Hinkle decided to define subordinate and superordinate constructs is seen as confusing does not necessarily detract from the usefulness of the methods he described, such as laddering.

The laddering process involves first eliciting constructs in the usual manner and then asking the person to say by which pole of each construct they would prefer to be described. Hinkle's standard instructions start by asking the following:

> Now on this construct you preferred this side to that side. What I want to understand now is why you would prefer to be here rather than there. . . . What are the advantages of this side in contrast to the disadvantages of that side as you see it?
>
> (Hinkle, 1965, pp.32–33)

The answer given is another construct that is superordinate to the first, and which also has a preferred side. The question 'Why?' is again asked about the preferred side of this new construct – it is usually obvious which is the preferred pole after the first question. The question 'Why?' is asked of each

new construct until the person is unable (or unwilling) to produce more. It is essentially a structured interview. One of the skills involved is in asking the questions. There needs to be variation in asking 'Why?', otherwise it becomes too stilted and the interviewee becomes bored with the procedure. It works best if the process is more like a conversation than a task.

For example, with different types of camera lens as elements, the laddering was carried out from the elicited construct *shows more than can be seen by the naked eye* vs. *shows what can be seen with the naked eye*. The preference was for lenses showing more than can be seen by the naked eye, and when the client was asked what the advantages were for that, they replied that one *might see something new*, whereas there *was no chance of seeing something new* with the naked eye. Why was it important *for her* to have a chance of seeing something new? You *might stumble across a mystery – something you could not explain*. Why was this important? *It put you in your place*, whereas otherwise you could *think you were master of everything*. Why was it important *for you* to be put in your place from time to time? Because *only God has the answer to everything, and you need to be reminded of that*. It has become clear from practice that it is important to keep the person focused on the 'self' throughout the process, otherwise the task can easily become one of describing how people are in general. As the Organization Corollary would lead one to expect, there is an increasing tendency for the same superordinate constructs eventually to be reached at the 'top of the ladder'.

Sometimes it is difficult to identify precisely what the person is trying to convey as they go 'up' the ladder. In these cases, the following comments have been found to be useful.

(1) You can say 'I think I understand what you mean but, just to make sure, would you please say what you had in mind again?'. Very often, in repeating the discrimination, the person will be able to tighten up his or her construing and rephrase the construct in half a dozen words.
(2) If you are in doubt as to whether or not you understand the construct, the stated opposite pole of the construct will often clarify it for you.
(3) If you are in doubt, or you feel that the words are too vague, you can ask whether the person is really saying X, when you are pretty sure that X is not the case. By being given an indication of what the construct is not, the person is often able to tighten sufficiently to tell you what it really is.

Costigan, Closs and Eustace (2000) discuss some of the problems encountered when using laddering in their investigation of how psychiatric nurses construe their changing role. Sometimes it looks as if the person has given a more subordinate instead of a more superordinate construct in the ladder, as described for instance by Butt (1995). In the example given by Butt, he states that the construct *able to be myself with others* vs. *put up a front* clearly has a wider range of convenience than *deal with my mother* vs. *cannot*. It may well have a wider range of convenience, but that does not necessarily mean it was

more important to the woman. She preferred to assert herself rather than give in to others because she would then be able to *deal with my mother*, and the reason she wanted to deal with her mother was because *mother makes me feel so guilty*. Guilt is a powerful feeling – Kelly has said that sometimes 'the wages of guilt is death'. This woman seems to be saying she felt that she was constantly aware of being dislodged from her core role. Fighting our personal bogey can be very threatening. The issue is enormously important, and at the same time it has a narrow range of convenience.

Whether or not this is a valid interpretation in the specific case of Butt's client, there is no doubt that clients do sometimes give a reply that sounds like something that has gone before or is more subordinate. If that seems to be happening, it is important to check on it, perhaps by repeating the question. If the same response is given, it is probably best to conclude that the client either does not want to continue the exercise or has really reached the 'top' of the ladder. Perhaps she is not used to the intellectual exercise of trying to find words for some feelings or ideas that she has never expressed before. In the end, the client must always have the last word. Sometimes the construct with which the laddering started is itself already at a very superordinate level. In this case, the person may really be struggling to provide answers to satisfy the interviewer but just cannot do so because there is nothing more superordinate for them up the ladder – they must come down again or else feel that they have failed in the task. It is worth bearing in mind that laddering is a form of structured interview and is not an exercise in free association. It is part of the interviewer's skill to ensure that the interviewee keeps 'on course', by moving to more superordinate constructs without interfering with the person's construing process. A more detailed description of the laddering process can be found in Fransella (2003a).

R. Neimeyer (1993) has described a variation of laddering which he calls 'dialectical laddering'. Sometimes a client finds it impossible to say which pole of a construct is the preferred one, as both have unfavourable implications. Neimeyer suggests that it can be useful to take one of the constructs and ask the client if there is any way in which the two poles could be brought together to create a synthesis. This may enable the client to see that construct in a new way. Neimeyer cites the example of an accomplished pianist who often gave solo performances worldwide. However, she was unhappy with herself and her life. One of her laddered constructs was *trust–distrust*. She could go no further with the ladder because both poles had their disadvantages. Neimeyer asked her to try to find some way of bringing together the two antithetical poles. She came up with the idea that perhaps *realistic trust* might be a workable alternative.

Savage (1997) provides a useful comparison of laddering with the *core transformation process* developed by Andreas and Andreas (1994), suggesting that the latter allows 'core metaphysical constructs of spirituality to be revealed'.

Anyone who involves themselves in eliciting and laddering will rapidly come to the conclusion that, as in all psychological experiments, they are involved in a social situation. However, these are clearly social, interactive procedures in which the subjective element is of far greater importance than in the experimental situation because of the lack of objective criteria to guide one. Laddering in particular is a situation in which two personal construct systems attempt to interlock. The only thing that stops the situation becoming one in which the two people engage in an orgy of introspection is that one person (the interviewer) is attempting to subsume the construct system of another (the interviewee). It is in the attempts to subsume that distortions can occur.

Judkins (1976) points out that the subjective aspect of 'introspective dialogue technique', as he nicely describes it, is hidden by the growth of grid technology and the ever increasing sophistication of methods of statistical analysis. This encourages the false impression that grid methods are fairly precise, step-by-step, scientific procedures.

The elicitation, but particularly the laddering, of constructs is an art and not a science. Therefore the examiner must expect to have to gain experience in this art and so learn to minimize his or her influence in determining the constructs given. The ability to subsume another's construing is itself an art. It is not easy to put one's own values to one side in order to more clearly 'be aware of' how another sees the world. Although the social constraints on the constructs elicited are determined by how the person construes the situation, most distortion occurs when a construct is given that consists of far too many words to be of practical use, when one does not quite understand what the person is getting at, or when he or she has great difficulty in verbalizing the construct. One way of minimizing the distortion is to agree to put what the client says in inverted commas – the client always knows what the construct is.

Perhaps the most important rule to bear in mind when laddering or eliciting constructs is that the examiner must *listen*. This does not mean being silent. One can mutter, nod approval, and even rephrase what the person has said and ask whether this was what was meant – although that is not easy to do without distorting what the client really means. The art lies in never *imposing* constructs.

Fransella has constantly argued that laddering should be regarded as a skill and not a standard procedure. Those who have mastered the skill of laddering find that it is one of the most powerful ways of eliciting the construing of individuals that psychology has produced. For instance, a person can ladder from *shoes with laces* vs. *slip-ons* in two or three steps to *need to know what is going on* vs. *sit back and see what life brings you*. What follows is based on the assumption that laddering results in superordinate constructs.

Fransella and others have conducted research which shows that laddered constructs do indeed tend to produce constructs that have more implications, have more meaning and are more superordinate *in general* than the constructs from which the ladder started (e.g. Fransella, 1972; Button, 1980). R. Neimeyer,

Anderson and Stockton (2001) categorized the constructs, starting with 'concrete' and ending with 'moral' and then 'existential'. As one might expect from previous work, constructs in the 'existential' category appeared significantly more often from laddered constructs than from elicited ones. R. Neimeyer, Anderson and Stockton's (2001) results also confirmed what most practitioners know and Hinkle also found, namely that laddered constructs need more words to name them and, as would be expected, take more time to complete the description than do more subordinate constructs.

## By Constructing Pyramids

In a sense, this is the opposite of Hinkle's laddering method, as it asks for more and more subordinate or concrete personal constructs. Landfield (1971) suggested it as a way of avoiding the more formal approach of Kelly's Minimum Context Form of elicitation. In this pyramid procedure, the person may first be asked to think of a known person with whom he or she feels most comfortable and whose company he or she enjoys. The name is unimportant to the interviewer, but it is useful to know whether the person being thought of is male or female. It is also important that the person understands that he or she has only to focus on one aspect of the acquaintance.

When the person has named the characteristic, he or she is asked to state what kind of person would represent the opposite of that characteristic. In Landfield's example, the construct first elicited was *open–closed*. When asked what kind of person an *open* person is, the client replied that 'he is willing to listen to you'. He was then asked to state what kind of person does not listen to one, and the reply was 'someone not interested in me'. In response to the question about what kind of person a *closed* person was, the client replied 'somebody people do not like', and this in turn was 'someone that does not like me'. The pattern is shown schematically in Figure 2.3.

A third level can then be elicited by asking about each construct pole at the second level. For example, 'How would you know when a person is not interested in you?'. Here one is eliciting increasingly subordinate (concretistic) constructs. Other pyramids can be formed by this method of elicitation and, as with the other forms, the constructs put into some form of grid. The client should also:

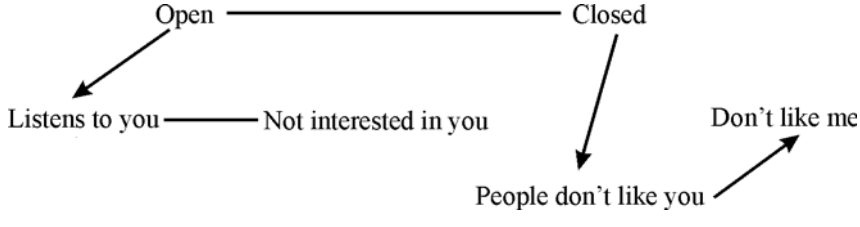


**Figure 2.3** An example of constructs elicited by 'pyramiding'

> be encouraged to say whatever comes into his mind and not to be concerned if he gives repetitive responses later in the procedure. When the client feels he should react more rapidly or finds it difficult to think of the most appropriate words or expressions he is reassured by being told that the task is a new experience and most people have this difficulty (which is true).
>
> (Landfield, 1971, p.135).

This method can be particularly useful for eliciting specific behaviours that may relate to a person's problem.

This procedure has much in common with Hinkle's laddering, with Hinkle taking the person 'up' a ladder and Landfield taking him 'down' it. Both methods can also become an integral part of any personal development programme, as both parties learn from the experience. Both methods can also be used as part of any general interviewing procedure.

For instance, Honikman (1976) used pyramiding in his study of people's views on living-rooms. By asking why a particular room was considered to be, say, *formal*, he found that the answers always ended up involving physical characteristics (e.g. *rough bricks*).

## By the ABC Model

In 1977, Tschudi described a way of unlocking the meaning of 'symptoms' by looking at what he called 'honest and loaded questions'. In 1984, he and Sandsberg described his ABC method as discovering the 'advantages of symptoms' (Tschudi & Sandsberg, 1984). The argument was that whenever we have a particular behaviour that we want to change but seem unable to, that behaviour has some advantage for us. The ABC model goes something like this (see Figure 2.4):

A: states the problem ($a_1$) vs. the desired state ($a_2$).
B: asks for the disadvantages of $a_1$ and the advantages of $a_2$.
C: asks for the disadvantages of $a_2$ and the advantages of $a_1$.

In practice, this can be a very powerful way of eliciting construing in relation to specific problems. In effect, the person is being asked to say that their problem is, at least in part, actually serving a purpose for them – that is, what their current problem is protecting them from. The interviewer must be sure that the person is ready to discover why they *choose* not to give up some piece of behaviour that they do not like. We do not always want to know that the undesired behaviour may be our own responsibility.

## Making Sense of Patterns of Construing

Harry Procter (1987, 2003) has developed what he calls the *bow-tie diagram* (so-called because of its shape) in his personal construct approach to family therapy. The bow-tie diagram was created to show how problems within the

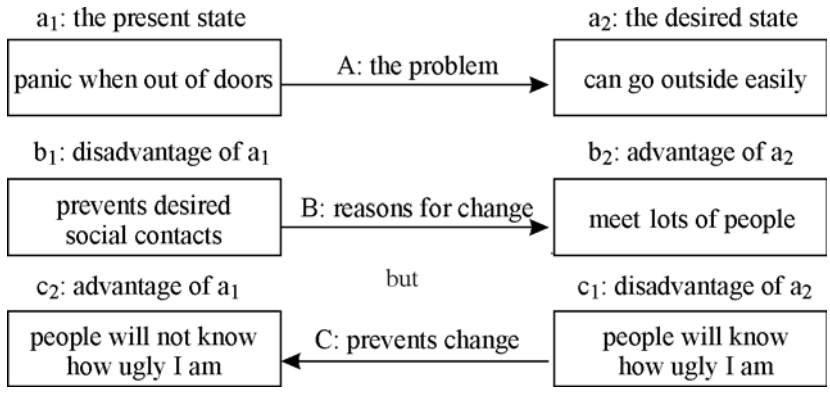


**Figure 2.4** Sketch of the ABC model

family may be maintained. Figure 2.5 shows the pattern of an adolescent whose poor view of himself relating to depression was perhaps being maintained by his father, whose view the child respected. However, his father was critical of him and compared his son unfavourably with his successful older sister. As you can see, each construct provides validation of the other's construing, so ensuring that the construing between father and son is maintained.

As with all work with clients, when a pattern such as this is observed, it can be explored with the individuals concerned. In this case, it would be useful to obtain the mother's view of the father–son relationship and compare it with their own view of her. The constructs used in the bow-tie method can be elicited from conversations in the therapy group, by standard elicitation and grid procedures or by using the less time-consuming approach involving Procter's *qualitative grid* (Procter, 2002), which is described in Chapter 3. As

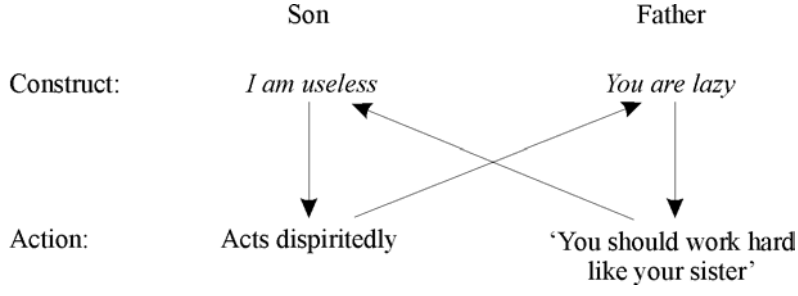


**Figure 2.5** 'Bow-tie' diagram of construing between father and son. Reproduced from Fransella (Ed.) (2003) by permission of John Wiley & Sons, Ltd

R. Neimeyer (1993) has pointed out, there is no need to limit the bow-tie method to just two people.

## TO ELICIT OR TO SUPPLY CONSTRUCTS?

Quite a literature has developed over the question of whether or not supplied or provided constructs give the same answers as elicited constructs. It is important to bear in mind here that one is supplying the verbal label to which the person will attach his or her personal construct; what is essential is that the labels are meaningful to the person. The construct labels that are provided may range from those that are identical with constructs used by the person to constructs that are gibberish to him. The latter could be constructs with verbal labels in a foreign language, or constructs from specialized subsystems containing jargon. All constructs are 'personal' in the sense that the person is able to place them over events and make something of them. Kelly's Individuality Corollary states that 'Persons differ from each other in their construction of events'. Another person's constructs may not be precisely as useful to us as our own, but we can usually make some sense of them, otherwise communication would be impossible.

For some purposes it is better to supply construct labels, at least in part. For instance, clients may not provide you with constructs which you have reason to believe are very important to them. This is particularly so in the field of clinical work. You may be testing out an idea about why a person is behaving in a particular way. It may be vital for you to supply certain constructs which will then be given personal meaning by being related to those elicited from the client. For example, it is usual to supply constructs to do with various aspects of the self (e.g. 'like me in character', 'like I'd like to be in character', 'as others see me'). For some experimental purposes (e.g. in the study of language), it is necessary to compare the relationship between specific verbal labels. In such cases, it is clearly essential to supply these labels. If you are in doubt about what kind of constructs are applicable to a certain group of people, it is common practice to collect a sample of constructs from a comparable group or from the group itself. You are then fairly safe in assuming that the most commonly used constructs for that group will be meaningful to the individuals. The Commonality Corollary indeed suggests that this should be so. However, as they have been selected from a common elicited pool, they are not in any simple sense either 'provided' or 'elicited'.

If there is some doubt about the meaningfulness of a construct for an individual, you can then refer to the individual. For instance, Salmon (1976) recommends that the meaningfulness of a provided construct for a child should be tested out. She cites the example of the child whose difficulty in accepting a new sibling is under investigation. The psychologist may wish to supply the construct *feels jealous of the baby–is glad about the baby*. The

meaningfulness of this construct can be tested by asking the child directly whether it makes sense (e.g. by saying 'Do you know what I mean when I say . . .?').

However, there is evidence to show that although supplied constructs, if well selected, can have meaning for other people, our own personal constructs are usually more meaningful to us on account of their having more extreme ratings (e.g. Landfield, 1968). One study which found the opposite was that by Warr and Coffman (1970). However, Bender (1974a) pointed out that Warr and Coffman used the sequential method for eliciting personal constructs, which no other 'extremity study' has done. The sequential procedure is long, as only one element at a time is changed in each triad. Bender argued that such a procedure may well elicit somewhat trivial constructs, since there are relatively few really meaningful constructs that a person can verbalize. He tested this theory out, and his results supported his hypothesis that sequentially elicited constructs (only one element changed in each triad) are more likely to produce relatively unimportant constructs than non-sequentially elicited constructs (only one element remaining the same in each triad). The finding of Warr and Coffman was later also contradicted by Bonarius (1977), who showed that people gave more extreme ratings on constructs elicited from them than on supplied constructs (the assumption being, of course, that the more extreme a rating, the more meaningful is the construct). Studies have also shown that elicited constructs produce more differentiation or cognitive complexity (see G. Neimeyer, 1992c, for a review of some of these studies).

Recently, Adams-Webber (1998) found that people could more easily make inferences about another person based on 22 elicited constructs and rated on 2-point scales than based on the 22 constructs that had been supplied. This issue of whether personally elicited constructs are more meaningful to an individual than those supplied no doubt depends on the skills of the designer in providing meaningful constructs. Adams-Webber ensured that the constructs were meaningful to the participant undergraduates by randomly selecting constructs that had been elicited from students at the same university on other research occasions.

An interesting point has been made by G. Neimeyer and Leso (1992). It may just be that the difference, when found, between elicited and provided constructs stems from the fact that the interviewee has been asked to construe his or her own construing processes during the elicitation process, and so is more sure about them than when faced with the constructs 'cold', so to speak. Neimeyer and Leso conducted a two-part study to test this idea in relation to cognitive complexity (the more loosely-knit a person's construing system, the more complex it is said to be). They argue that it may be the elicitation process itself that produces the differences, rather than the difference between the elicited or supplied constructs (this is discussed in relation to cognitive complexity in Chapter 5).

Thus the observed differences between provided and elicited construct may not reside within the constructs but within the elicitation procedure. If this is so, then one can take up the suggestion of Moore and G. Neimeyer (1997), and give the individual the opportunity to elaborate for him- or herself the meaning of the provided construct.

Constructs have to be supplied in a group context if group data are required. After all, Kelly did provide the Commonality Corollary as the opposite pole to his Individuality Corollary. One way of working with both corollaries was developed by Fransella in the early 1980s by translating elicited into supplied constructs in what came to be called 'diagnostic research' in organizations (Fransella, 1988). Her argument, in line with the Commonality Corollary, is that people who form a subgroup within an organization will construe the elements making up their work and their organization in similar ways. A small sample of the group to be surveyed is given individual interviews in which constructs are elicited from relevant elements, such as 'how I see my job now', 'my organization', 'my manager', 'my organization in 3 years' time', and so on. These elicited constructs are then sorted into themes by two or more people. One construct is selected that seems to represent what the group is saying. These 10 or 12 selected constructs form a standard grid which is then administered to as many people as the research requires.

Bell (2000a) has described a way in which the commonality of construing in a repertory grid can be assessed, and thereby provides a test of the Commonality Corollary itself. We are again finding that the constructs used in grids are determined by the context in which they are used.

Basically, there is no reason why carefully selected constructs should not be supplied for use in a grid, the emphasis being on 'carefully selected' because the grid designer must ensure that they are as meaningful as possible to the user. It is not surprising that we regard our own constructs (in general) as being more important to us than those selected from a pool of constructs (in general). From a practical point of view, the providing of constructs can be essential, particularly when one is focusing on individuals' construing of themselves and others.

As with reliability, if you are concerned about the relative importance of constructs that you consider it necessary to provide, then this must be determined for those particular constructs in that particular grid for that particular person. You could follow Isaacson's procedure (1966) and ask the person to rank elicited and provided constructs in order of importance. There is no strong evidence to indicate that one should not provide constructs for a grid. On the contrary, as we have outlined above, there is some evidence to suggest that using provided constructs does produce meaningful results, *provided that* those constructs are chosen with an eye to their relevance and meaningfulness to the task in hand and to the person who is to use them.

## CLASSIFICATION OF CONSTRUCTS

Landfield (1971) made the first attempt to systematically categorize elicited constructs. He described 22 categories, each with a definition and examples. For instance, *social interaction* is defined as 'any statement in which face-to-face, ongoing, continuing interaction with others is (clearly) indicated'. Examples of statements concerning social interaction are *aggressive*, *brotherly*, *engaged* and *extrovert*. Landfield did some research examining the implications of these categories, relating them to gender and to the likelihood of the person changing in therapy. He also reported some inter-scorer reliability values for the different categories. However, the use of similar verbal labels does not necessarily mean similarity of construing. Fransella (1972) found that only a substantial minority of constructs of a UK sample appeared to fit several of Landfield's categories. R. Neimeyer and Murphy (1990) have developed a computer program to implement Landfield's coding system.

More recently, Feixas, Geldschläger and R. Neimeyer (2002) performed a content analysis of personal constructs used by Spanish-speaking people with psychological problems. That analysis consists of 45 'content categories' which are further divided into six 'basic areas', namely *moral*, *emotional*, *relational*, *personal*, *intellectual/operational* and *values/interests*. R. Neimeyer, Anderson and Stockton (2001) extended these to include the categories *existential* and *concrete*. As can be seen, these areas are nearly all at a very superordinate level of construing indeed.

Although researchers may well find such categorizations useful, there are bound to be constraints, at least at national level. However, what about constraints at regional level as well? There is also the issue that constructs are bipolar. What about Yorke's (1985) 'bent' constructs? The person can provide a pole belonging to another construct if he or she is asked how the third person in a triad differs from the two who are seen to be similar. Although there may well be consensus at the verbal emergent pole of a construct, the opposite pole often shows just how idiosyncratic a personal construct is.

At a purely evaluative level, in the Feixas 'moral' category there is the *good–bad* dimension. Few would quarrel with that. However, the first construct under this is *good heart*, with its opposite *does not deserve acceptance*. One can see that the opposite is 'bad', but is it really the opposite of *good heart* for the majority of people? Richard Bell (personal communication) has been looking at the classification system of Feixas and colleagues. He cites the example of *mature–immature*, which is one of the Feixas cagetories, and found it to occur about seven times in around 1000 constructs elicited from Australians. He gives the following examples of how opposite poles differ:

*immature in thought–thinks about deep issues*
*mature–childish*
*more sensible–immature.*

He then took the construct pole *sensible* and found opposite poles:

*sensible–rowdier*
*wild–sensible*
*sensible–hyperactive*
*sensible–crazy.*

If researchers want to go along this route, they may be wise to create their own verbal categories for their own purposes.

## WHICH ARE MORE IMPORTANT IN A GRID – ELEMENTS OR CONSTRUCTS?

Bell, Vince and Costigan (2002) pointed out that no one to date had asked whether elements or constructs account for more of the variance in a grid analysis. Six analyses of data from previous studies were performed. The data consisted of grids compiled with supplied elements and constructs, data in which constructs were rated on each element in turn, differing elements, supplied elements and elicited constructs, with different rating scales ranging from dichotomous to 7-point scales. There was no consistently greater amount of variance accounted for by constructs. However, in a number of data sets there was significantly greater variance accounted for by elements. In general, the element effect occurred in data sets in which the elements were role titles. As the authors state, this may be because role titles usually include evaluative titles such as the ideal self and a 'pitied' person. This would tend to cause more polarization of ratings because of the evaluative nature of the elements. The implications of elements accounting for more variance in grid analyses are not yet clear.

## CONSTRUCTS AND ELEMENTS: THE DEBATE

There is an ongoing debate about whether elements exist independently of constructs, or whether in fact elements are also constructs. We are not offering a solution but simply a brief history of the issue. The obvious starting place is with George Kelly. In 1955, he stated the following in relation to free will and determinism:

> A person is not necessarily articulate about the constructions he places upon his world. Some of his constructions are not symbolized by words; he can express them only in pantomime. Even the elements which are construed may have no verbal handles by which they can be manipulated, and the person finds himself responding to them with speechless impulse.
>
> (Kelly, 1955/1991, p.16/Volume 1, p.12)

He then goes on like this:

> The relation established by a construct or a construction system over its subordinate elements is deterministic. In this sense the tendency to subordinate constitutes determinism.
>
> (Kelly, 1955, p.20/1991, Volume 1, p.15).

> Actually there are two forms of determinism which concern us. The one is the determinism which is the essential feature of any organized construction system – the control of superordinate constructs over subordinate elements.
>
> (Kelly, 1955/1991, p.20/Volume 1, p.15).

> One thing more: since determinism characterizes the control that a construct exercises over its subordinate elements, freedom characterizes its independence of those elements.
>
> (Kelly, 1955/1991, p.21/Volume 1, p.15)

Here it seems that Kelly is using the term 'element' to refer to any construct that is subsumed within the range of a superordinate construct. It is perhaps important here to remember that 'superordinate' and 'subordinate' are relative terms. It is probably fair to say that all constructs are one thing or the other depending on where in the hierarchy they are.

Kelly (1959) brings up this theme again in his first of three lectures on 'Interpretation in Psychotherapy'. He says:

> It can be argued, and quite reasonably, that the events which are interwoven with constructs are themselves constructs. This is true in two senses. They come into psychological being by the constructs that hold them in place, and they are themselves simple generalities imposed upon natural phenomena.
>
> (Kelly, 1959, p.16)

Bannister and Mair (1968) describe Kelly's meaning of the term 'element' as follows:

> Kelly uses the term 'element' to describe a *relationship* between constructs (an element is a construct within the range of convenience of a superordinate construct). This is reflected in the interchangeability of 'elements' and 'constructs' in grid administration.
>
> (Bannister & Mair, 1968, pp.126–127).

In his review of the book by Bannister and Mair, Slater writes at length about this apparent definition confusion. He says quite categorically that 'grid technique requires a set of elements as well as a set of constructs – or, if you prefer, of constructs *qua* operands as well as constructs *qua* operators' (Slater, 1969, p.1290).

Ryle (1975) also accuses Bannister and Mair of causing confusion in their use of the term 'element' for a subordinate construct that is subsumed by its superordinate construct as used in the context of repertory grids. Ryle points out that Kelly actually used the concept of superordination, introduced in his Organization Corollary, in two ways. The first way was in what Ryle calls

*construct construing*, as in the above examples from his first chapter on 'Constructive Alternativism'. The second way was what Ryle calls the 'more general' way, as in 'constructs may be used as viewpoints for seeing other constructs which are subordinate to them' (Ryle, 1975, p.136), which appears in his chapter on 'The Nature of Personal Constructs'.

The last person to be mentioned in this debate is Husain (1983), who has equated elements with events as mentioned in Kelly's Fundamental Postulate: 'a person's processes are psychologically channelized by the ways in which he anticipates events'. Husain argues that an event cannot be a construct as it is not bipolar, because it is a temporal notion, a view that Kelly agrees with, defining *events* as follows:

> Man ultimately seeks to anticipate real events. This is where we see psychological processes as tied down to reality. Anticipation is not merely carried on for its own sake; it is carried on so that future reality may be better represented. It is the future which tantalizes man, not the past. Always he reaches out to the future through the window of the present.
>
> (Kelly, 1955/1991, p.49/Volume 1, p.34).

One could say that an 'event', once construed, has become part of our construing system and so has become an aspect of some of the constructs that have been used to construe it. The event itself has ceased to exist. As Husain says, it is a temporal notion. One could go on to say that elements as used in grids have indeed already been construed, and so are themselves part of our construing system.

However, perhaps we might leave the discussion by suggesting that the confusion has been caused by Kelly himself due to his rather slack use of words. Does it really matter? Is it anything more than an interesting academic exercise?

## COMMENT

There are some rules about the elements and constructs to be used in any grid. However, as new methods and forms of grid are devised, new questions are bound to arise. Provided that one goes back to the theory when in doubt, these problems should be soluble. However, if no reference is made to the theory, it is possible to paint oneself into a corner. This has happened to some extent already. Over the years there has been increasing pressure from research to look at the consequences of using different types of element and of changing elicitation procedures. We need to add to this the development of different types of grid and different ways of collecting the grid data.

Looking at the research that has been conducted into the differences resulting from providing vs. eliciting personal constructs, the difference vs. opposite methods of elicitation, triads vs. dyads, and so on, may get us back to Kelly's view that $n$=1. For those who use grids face to face with clients, it is

unlikely that knowing the answers to these aspects of elicitation procedures will determine practice – mainly because there are no normative data at the present time. At the coalface, the client will soon let you know whether or not you have got it more or less right. On the other hand, the research is vital because there may well come a time when some 'rules' will emerge that can be passed on to those whose primary interest is in working personally with a client. One definite statement which can be made for all users of grids, for whatever purpose, is that a grid is only as useful as the elements that are selected in the first place.

Chapter 3

# VARIETIES OF GRID IN USE TODAY

> But we can look beyond words. We can study contexts. For example, does the client use the word 'affectionate' only when talking about persons of the opposite sex? Does he apply the term 'sympathetic' only to members of his own family or only to persons who have also been described as 'intimate'? The answers to questions such as these may give us an understanding of the interweaving of the client's terminology and provide us with an understanding of his outlook which no dictionary could offer.
>
> (Kelly, 1955/1991, p.267/Volume 1, p.189).

We are concerned here with the basic methodology that Kelly offered for deriving a mathematical description of part of a person's psychological space, a basic assumption being that a mathematical relationship between a person's judgements reflects psychological assumptions underlying those judgements.

In this chapter it is our intention to take you by the hand and lead you through the complexities of actually getting down to doing a grid. First we shall describe Kelly's original grid form.

## THE GRID FORM OF THE ROLE CONSTRUCT REPERTORY TEST

This puts mathematics into the Role Construct Repertory Test (described in Chapter 2), which dealt only with the elicitation of constructs from a set of role titles as elements.

Kelly now suggests that the triads (or sorts) which the person being interviewed is asked to compare should be selected from the six groupings of role titles given in Chapter 2, page 21. The triads from which the constructs have been elicited in Figure 3.1 are shown in the grid matrix as circles. In the

| Emergent pole | self | my father | an old flame | an ethical person | my mother | a rejected teacher | as I would like to be | a pitied person | Implicit pole |
|---|---|---|---|---|---|---|---|---|---|
| clever | O | O | O | | | | | | not bright |
| disorganized | | | | O | O | O | | | organized |
| listens | | O | O | | | | O | | doesn't hear |
| no clear view | O | | | | | O | | O | clear view of life |
| understands me | | O | | O | | | | O | no understanding |
| ambitious | O | | | | O | | O | | no ambition |
| respected | | O | | | O | | O | | not respected |
| distant | | | O | | | O | | O | warm |
| rather aggressive | O | | | O | | O | | | not aggressive |

**Figure 3.1** The format of Kelly's Role Construct Repertory Test showing triadic elicitation of constructs

first row, the two shaded cells containing circles indicate the two people who are seen as being alike in some important way, which in this row is the construct pole *clever*, and which is seen as being different from the third element in the unshaded circle, which elicits the implicit pole of *not bright*.

Although some people find it useful in particular contexts to have the triads indicated by circles in the grid form, few would now want to use 22 elements. The far more common number of elements is between 10 and 13. However, as with all other aspects of grids, there can be no hard-and-fast rule. Grid designers have to decide on all aspects of the grid that suits their purposes. Kelly suggests that grids should first be looked at without their 'statistical nightshirts', to allow one to see something of what the person is actually telling one directly. Quite clearly, whenever we look at a grid in its naked form or at the statistical outputs, we look through our own system of constructs. We select what we shall look at and determine what we shall consider to be important. Our purpose here is only to provide an example of how Kelly first came to describe his grid.

Having elicited the constructs as described above, to complete the grid form the person is asked to place a tick under the name of each element to which the construct applies. Thus the matrix consists of a number of ticks and blanks. However, Kelly experienced a problem with this grid. An individual would sometimes see hardly any other people as being characterized by one pole of the construct. He suggested that these rows should be eliminated from the grid calculations. However, not everyone was satisfied with this conclusion, and so other ways of completing repertory grids were developed.

## THE SPLIT-HALF METHOD OF ALLOCATING ELEMENTS

Bannister (1959) thought that this might make the grid too small, and suggested an alternative method to overcome such *lopsidedness*. The person could be asked to allocate all of the elements equally to the emergent and implicit poles of each construct. However, this split-half method proved to restrict the client too much. The next step in the development of grid methods was to ask the person to rank the elements in terms of each personal construct.

## A GRID USING RANKINGS

Although it still restricted the client, this method proved to be very popular. No doubt one of its attractions was that scoring was possible without recourse to Aldous, the Personable Computer (Kelly, 1963). This method of ranking the elements in terms of each personal construct was suggested by Phillida Salmon and first described by Bannister (1963). The basic task facing the person is to rank those elements that are most readily subsumed under the emergent pole of the construct to those most readily subsumed under the contrast pole (e.g. from most *clever* to most *not bright*).

### Relating Elements and Constructs in a Rankings Grid

Suppose that you want to find out how a person views particular situations – maybe situations which are related to some annoying or undesirable behaviour, such as stuttering. Then the elements could conveniently be those specific situations. In the following rank-order grid, the elements are situations known to be related to the severity of a particular man's stuttering. The constructs were either elicited by the triadic method or else supplied because they were known from interviews to be important. Each element (E) is written on a separate card and given a number ranging from 1 to 11, which is written on the *back* of the card. The element number is on the back because the person might find him- or herself ranking by learning the order of the numbers rather than by construing the elements. The elements in this case are as follows.

El Talking into the microphone of a tape recorder
E2 Talking to friends or people I know
E3 Talking to strangers
E4 Talking to one person
E5 Talking to a few people
E6 Talking to a large group
E7 Talking to older men
E8 Talking to young men

E9 Talking to older women
EI0 Talking on the telephone
Ell Talking to young women

Each construct is also written on a small card and given a number, which is written on the *front* of the card. The constructs in this example are as follows.

Cl *Situation likely to involve someone in authority over you or senior to you*
C2 *Situation in which you would find it difficult to see or interpret the person's reactions*
C3 *Situation in which you would be most likely to stammer*
C4 *Situation in which you would be most likely to feel confident*
C5 *Situation in which you would be most likely to resent your stammer*
C6 *Situation in which you would be likely to feel anxious or uneasy*
C7 *Situation in which the person would be likely to be critical of you*
C8 *Situation likely to involve your wanting to make a good impression*
C9 *Situation in which the person or people would be likely to think the worse of you if you stammer*

The rankings grid is compiled in the following manner. All 11 element cards for the grid shown in Figure 3.2 are laid out on the table in front of the person, in this case a man. Construct card 1 is placed before him. He is asked to name

| | | Constructs | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| | | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 |
| Elements | 1st | 10 | 10 | 10 | 2 | 11 | 10 | 10 | 11 | 10 |
| | 2nd | 7 | 1 | 1 | 5 | 6 | 3 | 3 | 10 | 6 |
| | 3rd | 3 | 3 | 6 | 4 | 10 | 6 | 6 | 6 | 5 |
| | 4th | 9 | 7 | 5 | 11 | 9 | 5 | 9 | 7 | 3 |
| | 5th | ❶ | 9 | 3 | 9 | 3 | 1 | 7 | 3 | 11 |
| | 6th | 8 | 8 | 7 | 7 | 7 | 9 | 5 | 5 | 9 |
| | 7th | 6 | 4 | 9 | 8 | 8 | 11 | 11 | 9 | 8 |
| | 8th | 11 | 11 | 8 | 3 | 4 | 8 | 8 | 8 | 7 |
| | 9th | 5 | 5 | 2 | 1 | 5 | 7 | 4 | 4 | 4 |
| | 10th | 4 | 6 | 11 | 6 | 1 | 4 | 2 | 1 | 2 |
| | 11th | 2 | 2 | 4 | 10 | 2 | 2 | 1 | 2 | 1 |

**Figure 3.2** Eleven elements in a rank-order grid (matrix of how elements are ranked on each construct)

or point to that element which is best described by the construct. In this case he is asked which of the 11 elements is most likely *to involve someone in authority over you, or senior to you*. He points to element 10 ('when talking on the telephone'). That element card is removed from the table and he is asked to point to the card, among the remaining ten, that describes the situation most likely *to involve someone in authority over you, or senior to you*. He points to element 7 ('when talking to older men'). That card is now removed, leaving nine cards on the table. He is then asked to point to the card from the remaining nine that is most related to Construct 1, and so on until there is only one card left on the table.

When all 11 cards have been ranked on Construct 1, they are returned to the table but in altered positions (so that the person does not obtain spurious correlations by simply pointing to cards moving from left to right). Thus the grid in Figure 3.2 is composed of the 11 elements which have been ranked in relation to each of the nine constructs.

Now the matrix of rankings has to be transcribed into rank orders for each element so that the relationships between the rankings can be analyzed statistically. The matrix of transcribed rankings shown in Figure 3.3 is constructed as follows. Under Construct 1, look for the rank that Element 1 is given (see the black circle in Figure 3.2). It is placed fifth. Thus, in the new matrix, in the intersect for Element 1 and Construct 1 the figure '5' is written (see the black circle in Figure 3.3). Element 2 on Construct 1 is given the rank of

| | | Constructs | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| | | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 |
| Elements | 1 | ❺ | 2 | 2 | 9 | 10 | 5 | 11 | 10 | 11 |
| | 2 | 11 | 11 | 9 | 1 | 11 | 11 | 10 | 11 | 10 |
| | 3 | 3 | 3 | 5 | 8 | 5 | 2 | 2 | 5 | 4 |
| | 4 | 10 | 7 | 11 | 3 | 8 | 10 | 9 | 9 | 9 |
| | 5 | 9 | 9 | 4 | 2 | 9 | 4 | 6 | 6 | 3 |
| | 6 | 7 | 10 | 3 | 10 | 2 | 3 | 3 | 3 | 2 |
| | 7 | 2 | 4 | 6 | 6 | 6 | 9 | 5 | 4 | 8 |
| | 8 | 6 | 6 | 8 | 7 | 7 | 8 | 8 | 8 | 7 |
| | 9 | 4 | 5 | 7 | 5 | 4 | 6 | 4 | 7 | 6 |
| | 10 | 1 | 1 | 1 | 11 | 3 | 1 | 1 | 2 | 1 |
| | 11 | 8 | 8 | 10 | 4 | 1 | 7 | 7 | 1 | 5 |

**Figure 3.3** Eleven elements in a rank-order grid (matrix consists of element *ranks*)

11, and so on. Thus constructs are along the top, elements are down the side, and the body of the matrix gives the rank position of the elements on the constructs.

### The Output

The rank-order grid lends itself to several forms of analysis. It can be analyzed by hand using Spearman's rank order correlation, rho. A great deal of information can be derived by simple arithmetic, but if you want to go into, say, the factor structure of the grid or analyze a large number of grids, it may be best to resort to a friendly computer (*see* Chapter 4 for some computer program suggestions). Mair and Boyd (1967) found that the 'split-half' form of grid and the rankings grid did not provide equivalent estimates of construct relationships. However, that finding has not been replicated.

## A GRID USING RATINGS

Rankings grids are still found to be useful in some contexts, but again they have been found by some to be too restrictive in that they force the elements to be uniformly distributed across the construct, not allowing any form of lopsidedness, even if it is appropriate. Bannister therefore returned to Kelly's original method, namely that of rating elements on constructs, although using a longer scale than Kelly's 2-point scale. It is this method that is much in use today.

In this grid, each element is *rated* on a scale defined by the two construct poles. There are many ways of administering such a grid to a client. What is fairly standard is to have all elements written on separate cards and to introduce the person to the idea that the bipolar constructs can be seen as the two ends of a rating scale. The ratings format is thus similar to the semantic differential devised by Osgood, Suci and Tannenbaum (1957). However, this superficial similarity of format should not be regarded as indicating similarity of underlying theory and assumptions (see, for example, Fransella, 1964; Bannister & Mair, 1968). Basically, the semantic differential uses previously established scales (bipolar constructs) derived from ratings of large numbers of people. It is a totally nomothetic tool and has none of the idiographic qualities of the repertory grid (*see* Chapter 7 for a further discussion of this issue).

A scale from 1 to 7 has commonly been used, and is the scale used in the grid example shown in Figure 3.4, where a rating of 1 relates to the construct pole on the left-hand side of the grid and a rating of 7 relates to the pole on the right-hand side. If we look at the ratings grid in Figure 3.4, the client will have been asked to consider the personal construct *clever–not bright* and also to look at the first element, namely 'self'. The questioning has been along the

| Emergent pole | self | my father | an old flame | an ethical person | my mother | a rejected teacher | as I would like to be | a pitied person | Implicit pole |
|---|---|---|---|---|---|---|---|---|---|
| clever | 2 | 1 | 6 | 3 | 5 | 7 | 1 | 5 | not bright |
| disorganized | 6 | 6 | 4 | 5 | 2 | 2 | 5 | 2 | organized |
| listens | 3 | 1 | 6 | 3 | 3 | 7 | 1 | 4 | doesn't hear |
| no clear view | 5 | 6 | 3 | 3 | 3 | 5 | 7 | 3 | clear view of life |
| understands me | 3 | 2 | 6 | 2 | 2 | 6 | 2 | 5 | no understanding |
| ambitious | 6 | 3 | 5 | 4 | 7 | 3 | 3 | 5 | no ambition |
| respected | 2 | 2 | 4 | 2 | 5 | 6 | 1 | 4 | not respected |
| distant | 3 | 3 | 7 | 3 | 5 | 1 | 6 | 5 | warm |
| rather aggressive | 1 | 3 | 3 | 3 | 5 | 2 | 5 | 7 | not aggressive |

**Figure 3.4** An example of a ratings grid matrix

following lines. 'If you see yourself as *very clever* you might give yourself a rating of 1, if you see yourself as *clever*, but not absolutely so, then perhaps a 2 or even a 3. On the other hand, if you see yourself as totally *not bright* then the extreme rating for you would be a 7, slightly less extreme than a 6. The rating of 4 means that you see yourself as neither *clever* nor *not bright*, or just that you cannot see yourself on that dimension at all.' This is not a test, so these are only suggested instructions. However, you have to give the client the idea of looking at his or her personal constructs along a 7-point scale. In our view, it is better for the client that the interviewer does the inserting of the ratings into the grid form. The client's sole job is to consider the construct/element pairing and call out a rating. One reason for this is to prevent the person from comparing their ratings as they go along. An analysis of this grid is given in Chapter 4, and an interpretation of the two-dimensional plot is given in Chapter 7.

Over the 30 years during which ratings grids have been used, much research has been carried out to see whether different grid formats and procedures produce different analysis results. These include the lopsidedness issue, the length of the ratings scale, whether it matters if all elements are rated on each construct in turn or vice versa (now called the 'direction' of rating), and whether constructs that are elicited early on are different from those elicited later. Three issues relating to elicitation procedures have already been discussed in Chapter 2. The first is whether it makes a difference if one asks the person to say how the third person in a triad differs from the two who are seen to be similar, or whether one asks for the opposite of the construct pole elicited from the two elements that are seen to be similar. The second issue concerns whether one uses three or two elements to elicit constructs or elicits

in other ways. The third is the much debated issue of whether supplying constructs makes a difference compared with eliciting them.

Some issues have yet to be looked at. For instance, does it make a difference if the grid is administered to an individual in a person-to-person context (as described above) as opposed to using group administration? Does it make a difference if the grid is administered to a group by computer or by another human being? And does it make a difference whether the person can see his or her previous ratings or not? The following are further issues on which we do have some data.

## Lopsidedness or Asymmetry of Ratings

The lopsidedness issue did not disappear with the advent of the rankings grid. On the contrary, it became a focus of the work of Adams-Webber on what came to be called the *Golden Section hypothesis*. The many studies up to 1990 have been summarized by Adams-Webber (1990). He and colleagues used Kelly's role titles and 2-point scale to show that, on average, people assign the positive poles of constructs to about 62% of the people whom they name. This figure remains the same for children, French as well as English speakers, and many other groups. The Golden Section has been shown to relate to whether or not the role titles are representative of the context under study (Benjafield & Green, 1978). That is, when the role titles were half 'positive' (e.g. 'likeable') and half 'negative' (e.g. unlikeable), an overall proportion of positive judgements of 62% was found. On the other hand, when more positive than negative role titles were rated, the proportion of positive judgements varied systematically in relation to the number of positive role titles used. The Golden Section hypothesis has even been supported when comic-strip figures were used as elements (Lee & Adams-Webber, 1987).

There are variations in the Golden Section percentages among various groups of people with psychological problems, such as those who are depressed (Rodney, 1981) and show a decrease in 'like self' judgements. One particularly interesting study looked at the Golden Section ratio among individuals who were psychiatrically diagnosed as thought disordered and non-thought-disordered schizophrenic people (Kahgee, Pomeroy & Miller, 1982). The elements that were used were the self, three positively evaluated and three negatively evaluated known people fitting role titles, and also three of each for objects. Not surprisingly, several of the objects were found to be outside the range of convenience of the constructs used. For instance, the authors state that 'it was difficult for some to characterize a chair as ''energetic'' or ''lethargic'''. However, despite this, both groups yielded positive responses that accorded with the figure of 62% predicted by the Golden Section hypothesis. The authors point to an obvious contrast between their findings and Bannister's earlier research showing that those with thought disorder were significantly looser in their construing than others.

Adams-Webber and colleagues have also demonstrated that the Golden Section operates in relation to 'like self' and 'non-self' poles of constructs. What is particularly interesting is that several studies have shown that the 62% of judgements of others being assigned to 'like self' poles of constructs can be altered if the person is role playing – for example, 'being stoned' (Leenaars, 1981) or being a serious failure rather than highly successful (Adams-Webber & Rodney, 1983). These findings relate to the Choice Corollary which suggests that we choose that pole of a construct which is likely to lead to the greater extension and definition of our construing system. It would be expected that we normally extend and define through the positive aspects of ourselves rather than the negative ones.

Consistent with this, Fransella (1969) reported that people who stutter often have more implications on the non-self pole of a construct – usually the more negative pole, because that is more meaningful to them as someone who stutters. As it is more meaningful when they are in any situation involving interpersonal communication, it is that pole of the construct which is likely to lead to extension and definition of that system, even though it is undesirable. This may relate to what Adams-Webber calls Type 2 constructs (Adams-Webber, 1990, p.71), on which the self is assigned to the negative poles of constructs which 'could be the focus of maximal uncertainty and possible anxiety in construing self and others'. What we seem to have here is a situation in which a person assigns the preferred pole of a construct to the 'self', but with the non-preferred pole of the construct having more meaning. It has more meaning because, when relating to others, the person is in fact behaving at the non-preferred pole. Most people who stutter do indeed experience much anxiety when communicating with others. An example of this is shown in the bipolar implications grid in Figure 3.8.

## Wording of Introductory Examples

Recently, another issue has been raised that seems to alter the output from grids. This concerns the way in which the grid process is described. Reeve, Owens and G. Neimeyer (2002) reported that whether raters are given descriptive examples (e.g. *warm and open* vs. *cold and reserved*) as opposed to more factual examples (e.g. *tall* vs. *short*) made a difference to the constructs elicited. They found that descriptive examples lead to more personally revealing constructs being elicited. G. Neimeyer and Tolliver (2002) have provided supportive experimental evidence for that finding. For instance, they found that physical construct examples lead to more physical constructs being elicited.

Whether this is an important variable or not depends on how usual this practice of giving examples is. It may be better to leave the choice of construing to the client. If an early elicited construct is not what the interviewer is after, it might then be appropriate to say 'Yes, that's fine, but

is there also any important way in which two of these three people are alike in terms of personality or character?', as described in Chapter 2.

## Length of Scale

Rather than using a 2-point rating scale as Kelly did, and as Adams-Webber does in much of his research, longer scales are now more commonly found. These are seen as providing more scope for people to express their views, and thereby yielding more comprehensive data. Thus the length of the scale can be anything from Kelly's 2 points (tick or blank) to 10 or even 16 points. A commonly used length is the 7-point scale, as this also gives a mid-point. Longer scales are sometimes used for specific purposes. Landfield (1971) decided on a 13-point scale ranging from +6 to −6. One reason for this was to use the central zero point to indicate that the element was outside the range of convenience of the construct, or that it was at neither one pole nor the other. The other reason was to obtain a measure of meaningfulness as an extremity rating.

Metzler, Gorden and G. Neimeyer (2002) thought that the length of the scale used might well affect some grid measures. They used grids with 3-point, 7-point and 13-point scales. All of the scales ranged from a minus point, through zero to a plus point. They found that the 3-point scale produced more zero ratings than either the 7-point or 13-point scales. There was no difference in the number of zeros generated between the 7-point and 13-point scales. This seems reasonable, since the shorter the scale the less choice a person has. At the present time, it does not appear to matter greatly what length of scale is used.

An earlier study by Lohaus (1986) investigated whether it made a difference if the scale length was imposed on the rater as opposed to allowing the rater to choose their own scale length. It was found that there was significantly greater test–retest reliability for the former. Reliabilities varied with the number of scale points (*see also* Chapter 6).

## Direction of Rating

One issue that has emerged in grid usage is whether each construct should be rated on all elements in turn, as Kelly first described, or whether each element should be rated on all constructs in turn. This has come to be called the 'direction' of rating. Epting *et al*. (1992) used a 13-point scale (from +6 to −6), and supplied constructs and role titles. They found more cognitive complexity or differentiation when each construct was rated on each element in turn before starting on the next construct. Cognitive complexity is a measure that is discussed in Chapter 4. It is defined by its originator Bieri *et al*. (1966) as follows:

> . . . the capacity to construe social behaviour in a multidimensional way. A more cognitively complex person has available a more differentiated system of dimensions for perceiving others' behaviour than does a less cognitively complex individual.
>
> (Bieri *et al.*, 1966, p.185).

Metzler, Gorden and G. Neimeyer (2002), while investigating scale lengths, also reported that it was the 3-point scale that differed from the 7- and 13-point scales by producing more zeros when rating downwards – that is, when rating one element at a time on all constructs. On the other hand, Bell, Vince and Costigan (2002) and G. Neimeyer and Hagans (2002) found that the direction of ratings made no difference.

As part of his Golden Section research work, Adams-Webber (1997a) also looked at the direction of ratings, using a 2-point scale, computer administration and supplied constructs. He reported that when all of the elements appeared on the screen and each construct was rated on all of them before moving on to the second construct, the 62% positive rating predicted by the Golden Section hypothesis was confirmed. However, when all constructs were rated on each element separately, it was not confirmed – there were significantly more positive ratings than would be predicted.

It seems fair to say that, at the present time, there is no consistent evidence that the direction of rating affects grid measures. Perhaps we should therefore continue to use Kelly's chosen way of rating each construct on all elements before moving to the next construct, until such time as research indicates that the direction of rating definitely makes a difference and, if it does, what that difference is.

## Evaluative Scales

Some research has been carried out to see whether it makes a difference if the rating scale is non-evaluative (e.g. running from 1 to 7) as opposed to evaluative (e.g. running from +4 to −4). It seems likely that indicating which poles of constructs are positive and which are negative could well bias the ratings given.

As part of their larger study, Epting *et al*. (1992) asked people to complete one grid using a scale running from +6 to −6 and rating all elements on each construct. They had to complete a second grid using ratings with 'L1–L6' relating to the left pole of the construct and 'R1–R6' relating to the right pole, but in this grid all constructs and all elements were visible at the time of rating. A third grid was presented in the same format as the second grid, but each person was asked to indicate which pole of the construct they preferred, and to place a plus sign against it and a minus sign against its opposite. The results showed that the first grid (+6 to −6) produced more differentiation than the second and third grids. The main difference between the first grid and the other two was that in the first grid all constructs were rated on each element in

turn, whereas in the other two the ratings were on all elements on each construct in turn. Thus it tells us little about the difference between using evaluative scales and using non-evaluative ones.

### Summary

It is difficult to draw many firm conclusions about the why's and wherefore's of administering grids. One conclusion must be that lopsidedness of ratings is to be expected, and that this is related to, among other things, the favoured and non-favoured poles of constructs and to how self and others are rated. The jury is still out on some other issues, and research evidence has yet to be obtained on others. If we were to make one general statement about administering a ratings grid to an individual client, it would be that it is probably better if the interviewer fills in the grid matrix, rather than the client. This means that the client's sole job is to consider the element and construct pairing and call out the rating, thus avoiding the problem of whether or not the client sees the ratings and is affected by this. The fact that nearly all of the research reported to date involves administration of grids to groups of people indicates a difference between the researcher and the practitioner. As yet we have no direct evidence as to whether group or individual administration makes a difference to the results.

Jankowicz (2003) has provided more detailed accounts of the practice of administering ratings grids to individuals.

## IMPLICATIONS AND RESISTANCE-TO-CHANGE GRIDS

### Hinkle's Impgrid

Dempsey and R. Neimeyer (1995) have commented on the surprising fact that so little use has been made of the implications grid, in view of its ability to allow direct measurement of the relationships between constructs.

The implications grid differs from the ranking and ratings grids in having no *elements* in the traditional sense. In fact, there is probably one implicit element – the self. Hinkle (1965; also described in Bannister & Mair, 1968; Fransella, 1972) set out to ascertain what meaning each construct has for the individual in terms of its implicative relationships to other constructs. His theory of construct implications stemmed from his view that George Kelly had never clearly defined what a personal construct actually is. As we pointed out in Chapter 1, Kelly described a 'construct' in several different ways. Hinkle's 'theory of implications' aimed to address the omission. His theory states that the meaning of any personal construct lies in what it implies and what is implied by it. He equated the word 'imply' with 'anticipate'. He created the implications grid, a resistance-to-change grid and 'laddering' as part of his

theorizing and research work. Thus, his instructions for completing the grid ask the person to indicate what goes with what. The instructions for the completion of his Impgrid (shown in Figure 3.5) are as follows:

> Consider this construct for a moment (Construct 1). Now, if you were to be changed back and forth from one side to the other – that is, if you woke up one morning and realized that you were best described by one side of this construct, while the day before you had been best described by the opposite side – if you realized that you were changed in this one respect – what other constructs of these . . . remaining ones would be *likely* to be changed by a change in yourself on this one construct alone? Changing back and forth on just this one construct will *probably cause* you to predictably change back and forth on which other constructs? Remember a change on just this one construct is the cause, while the changes on these other constructs are the effects, implied by the changes from one side to the other on this construct alone. What I'd like to find out, then, is on which of these constructs do you probably expect a change to occur as the *result of knowing* that you have changed from one side to the other of this one construct alone? A knowledge of your location on this one construct could probably be used to determine your location on which of these remaining constructs?
>
> (Hinkle, 1965, pp.37–38).

Each construct is in effect paired twice with every other, since Construct 1 is first paired with Construct 2, and later on Construct 2 is paired with Construct 1. As with other forms of grid, each construct can be written on a separate card and duly numbered (on either the back or the front of the card). It should perhaps be mentioned that there is no great mystery about using cards and numbering them. No doubt there are many other and better ways of doing things, but we are just giving you our experience of what has been found to be a satisfactory procedure. A completed grid is shown in Figure 3.5.

Hinkle pointed out that there are many ways in which any two constructs can be related, and just described the four given below in Figure 3.6. He explained that his implications grid deals only with reciprocal and parallel relationships.

Ten Kate (1981) has commented on this point, demonstrating the very many ways in which constructs can be related and concluding that there are only three logically possible relationships. People, of course, are not always logical, and the analysis of the bipolar impgrid in Chapter 4 shows the range of implicative relationships between constructs that can occur in real life. We endorse ten Kate's view that three is far too low a number to describe someone's construing system, and that no doubt some overlap is involved in which 'elements' of one construct are also elements of another. As has been discussed in Chapter 2, that is what Hinkle was referring to when he described the meaning of a construct as lying in its *trans-contextual identity*.

Ambiguous and orthogonal relationships between any two constructs can be investigated using the bipolar impgrid described later. Ten Kate (1981) pointed out that the simple act of considering how many patterns of relationships there can be between two bipolar constructs highlights the

| Constructs | Elicited constructs | | | | | | | | | | Laddered constructs | | | | | | | | | | | Total implications |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 10 | 11 | 12 | 13 | 14 | 15 | 16 | 17 | 18 | 19 | 20 | | |
| 1. Sympathetic–Hard | | xR | | | xR | x | | | | | x | x | x | x | x | | | | | xR | 1 | 9 |
| 2. Considerate of others' feelings–Inconsiderate | xR | | x | | xR | | x | x | | | xR | xR | xR | xR | xR | | | | | xR | 2 | 11 |
| 3. Sincere–Insincere | | | | | | | | x | | | xR | | | | xR | | | | | | 3 | 3 |
| 4. Clear-thinker–Muddled | | | | | | | | | | | | | | | | | xR | xR | xR | | 4 | 3 |
| 5. Forthright–Reticent | xR | xR | | | | xR | | | | xR | | | | | | | | | | xR | 5 | 5 |
| 6. Prejudiced–Tolerant | | | | | | | | | xR | | xR | xR | xR | xR | xR | | | | | xR | 6 | 7 |
| 7. Neurotic– Balanced | | | | | | | | | | xR | | | | | | | | | | | 7 | 1 |
| 8. Reliable–Unreliable | | | | | | | x | | | | | | | | x | | | | | | 8 | 2 |
| 9. Intelligent–A fool | | | | | | xR | | | | | | | | xR | xR | | | | | | 9 | 3 |
| 10. Sure of themselves–Insecure | x | x | | | | x | xR | | | | | | | | | | | | | | 10 | 4 |
| 11. Understanding–Self-centred | | xR | xR | | x | xR | x | x | x | | | xR | xR | xR | xR | x | | | | xR | 11 | 13 |
| 12. Kind–Unkind | | xR | | | x | xR | | x | | | xR | | xR | xR | xR | | | | | xR | 12 | 9 |
| 13. Learn more about people–Every man is an island | | xR | x | | x | xR | x | | | | xR | xR | | xR | xR | | | | | xR | 13 | 10 |
| 14. Understand things intellectually–Do not understand things intellectually | | xR | x | | x | xR | | | x | | xR | xR | xR | | xR | | | | | xR | 14 | 10 |
| 15. Human society develops–Society stagnates or is in conflict | | xR | xR | | | xR | | | xR | | xR | xR | xR | xR | | | | | | xR | 15 | 9 |
| 16. Honest with oneself–Kid oneself | | | x | | | | | | xR | | | | | | xR | | | | | | 16 | 3 |
| 17. Thinking is easier–Thinking is difficult | | | | xR | | | | | | xR | | | | | | | | xR | x | | 17 | 4 |
| 18. Can communicate better–Communicate poorly | | | | xR | | | | | | | | | | | x | | xR | | x | | 18 | 4 |
| 19. They understand what you are conveying–They think you are a fool | | | | xR | | | | | | | | | | | | | xR | x | | | 19 | 3 |
| 20. Assume the right to give an opinion regardless of the effect–Do not assume this (superior) right | xR | xR | | | xR | xR | | | | | xR | xR | | xR | | | | | | | 20 | 7 |
| | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 10 | 11 | 12 | 13 | 14 | 15 | 16 | 17 | 18 | 19 | 20 | | |
| Total implications | 4 | 9 | 6 | 3 | 7 | 10 | 5 | 4 | 5 | 3 | 9 | 8 | 7 | 8 | 12 | 2 | 3 | 3 | 3 | 9 | | |

**Figure 3.5** A completed implications grid. Redrawn from Hinkle (1965) by permission of the author

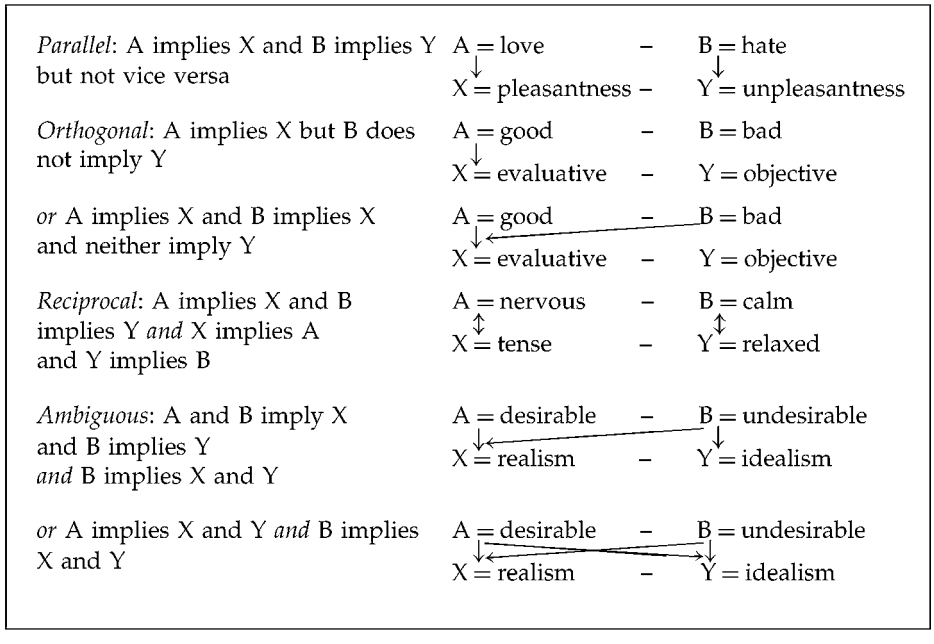


**Figure 3.6** Hinkle's (1965) examples of the ways in which personal constructs can be related. Reproduced by permission of the author

degree to which we oversimplify when we express such a relationship as a matching score or a correlation. He also suggests that we 'must be very careful . . . in interpreting implication grid results' (ten Kate, 1981, p.175), because the grid does not tell us the original preferred position on the construct poles. Even though the person had been asked which pole of each construct they would prefer to be described by, only the movement from the preferred (unspecified) to the non-preferred (unspecified) position is indicated on the implications grid itself. The bipolar implications grid (described later) overcomes this problem.

Hinkle postulated that each personal construct has a superordinate and subordinate *range* of implications, and that both of those ranges define the meaning of a construct in the grid. His scoring was simple. To obtain the superordinate range of implication of any one construct, one adds the implications in, for instance, column 1, and then adds the implications of each of those implications. Thus in column 1 (Construct 1) there are four implications (Constructs 2, 5, 10 and 20). Now add to the original four the implications in column 2 (nine), plus those in column 5 (seven), plus those in column 10 (three), plus those in column 20 (nine). This means that the superordinate range of implication, in Hinkle's terms, for Construct 1 is 32.

The same procedure is performed with the rows in order to obtain the subordinate range of implication for Construct 1.

It is important to refer to the criticisms already mentioned in Chapter 2, namely that Hinkle defined superordinate and subordinate in an unusual way. Most would say that constructs which *imply* others are superordinate and those that *are implied by* others are subordinate. Although agreed that there is some force in this argument, it does not affect the grid methods and laddering procedures that Hinkle created, and many now consider laddered constructs to be superordinate compared with elicited ones.

Among Hinkle's many suggestions for varying the implications grid is that elements from a ratings grid could be used. For instance, one can take one element at a time, such as 'my father', and ask the person to indicate which other constructs might be implied if he or she only knew that 'father' was placed on the *sympathetic* vs. *hard* construct. Another suggested variation is to ask the person to rate an implication in terms of certainty.

One can look at the grid in terms of intransitivity of constructs. That is, if A implies B and B implies C, then A should imply C. In the grid shown in Figure 3.5 we can see that Construct 5 implies Construct 6 and that Construct 6 implies Construct 15, but Construct 5 does not imply Construct 15. Hinkle suggests that a 'logical inconsistency index' could be useful in the clinical situation, perhaps relating to degree of insight.

Apart from Hinkle's measures, little research has been reported using implications grids since 1965. Honess (1979) has been one of the few to use it. He took the constructs from essays that had been written by children in four different age groups. He modified the grid for the younger children so that they could say that change on one construct was 'very likely', 'may or may not' or 'very unlikely' to change on the other construct. He used the following form of questioning: 'Suppose there is a new girl/boy coming to the school next week, she/he is the same age as you, and we only know one thing about her/him – she/he is shy. If she/he is shy, will she/he also be good at sports?'. In another very different study, Kelsall and Strongman (1978) used the implications grid to look at emotional experiences.

There have been two comparisons between the repertory rank order/ratings grid and the implications grid. According to Landfield and Epting (1987), the disadvantage of Hinkle's implications grid compared with repertory grids is that the person is required to have 'insight' in the implications grid. If this means that the person is asked more directly how things are construed than in the repertory grid, that is so. However, some would say that this is no bad thing. In fact, we might consider it to be a 'good' thing compared with the comment by Landfield and Epting that, with the repertory grid, 'the person simply does the specific ratings and it is the investigator who comes up with the insight' (Landfield & Epting, 1987, p.58). These authors state that an advantage of the implications grid is that a 'highly integrating superordinate construct' might appear as orthogonal on the repertory grid.

## RESISTANCE-TO-CHANGE GRID

This is a grid that Hinkle developed along with the implications grid to test, among other things, the hypothesis that the superordinate range of implications of constructs would be directly related to their resistance to change. Since Hinkle's work, this has come to be interpreted as meaning that laddered constructs will, on the whole, be more resistant to change than non-laddered constructs. This can never be a perfect relationship, because it is not uncommon for a very superordinate (at a high level of abstraction) construct to be given at the elicitation stage of the process.

The instructions that Hinkle gave to his interviewees were rather complex, and in general the following have been found easier to understand:

> Here are two of your own personal constructs. Today you say you prefer to be described by 'a' on this construct and by 'b' on this second construct. Now tomorrow morning you are going to wake up and you are going to have changed. You have either become 'b' on this first construct *or* you have become 'a' on this second construct. Which would you find it more difficult to change on?

There is no evidence to show whether it is better to ask for the construct on which it is *easier* to change or the one on which it is *more difficult* to change. It does not seem to matter provided, of course, that you keep to the same question throughout with the same person. In the example in Figure 3.7 the 'more difficult' alternative was used. Hinkle used an 'I' to indicate where a change was not possible and an 'e' where both changes were equally undesirable. However, much practice has shown that, with a little persuasion, nearly everyone can make a decision. Persuasion might be used in the form of a joke such as 'what if it has been *decreed*' that you will have changed?'.

It is useful afterwards to ask whether a person felt any physical discomfort when they had to make difficult choices. Very often people say that they did, usually with phrases such as 'my guts seemed to turn over' or 'I felt my stomach tighten up'. This could be an example of the effects of non-verbal construing and possibly of anxiety or threat. The prospect of having to be something one has deliberately chosen not to be can be alarming.

The completion of the resistance-to-change grid is quite easy. Assuming that all constructs have been written on numbered cards, and that the position of the preferred pole of each construct has been underlined, then each construct is paired with all of the others. When Construct 1 has been paired with all of the other cards, it is removed from the pack. The Construct 2 card is used next and then removed. Thus one ends up with a matrix of paired constructs, one construct in each pair being circled as the construct more resistant to change.

The resistance-to-change grid form shown in Figure 3.7 is a shortened version of the implications grid shown in Figure 3.5. In practice, it would be somewhat unusual to do a resistance-to-change grid with as many as 20 constructs. It is quite a time-consuming procedure. For demonstration

Elicited constructs 1–5 in Figure 3.5

1 = Sympathetic–hard
2 = Considerate of others' feelings–Inconsiderate
3 = Sincere–Insincere
4 = Clear thinker–Muddled
5 = Forthright–Reticent

Laddered constructs 11–15 in Figure 3.5

6 (11) = Understanding–Self-centred
7 (12) = Kind–Unkind
8 (13) = Learn more about people–Every man is an island
9 (14) = Understand things intellectually–Do not understand things intellectually
10 (15) = Human society develops–Society stagnates or is in conflict

*Elicited constructs 1 to 5, laddered constructs 6 to 10*

| | | | | | | | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| ① | 2 | ② | 3 | ③ | 4 | 4 | ⑤ | 5 | ⑥ | 6 | ⑦ | ⑦ | 8 | ⑧ | 9 | ⑨ | 10 | | |
| ① | 3 | ② | 4 | ③ | 5 | 4 | ⑥ | 5 | ⑦ | 6 | ⑧ | ⑦ | 9 | 8 | ⑩ | | | | |
| ① | 4 | ② | 5 | ③ | 6 | 4 | ⑦ | 5 | ⑧ | 6 | ⑨ | ⑦ | 10 | | | | | | |
| ① | 5 | ② | 6 | ③ | 7 | 4 | ⑧ | 5 | ⑨ | 6 | ⑩ | | | | | | | | |
| 1 | ⑥ | ② | 7 | ③ | 8 | 4 | ⑨ | 5 | ⑩ | | | | | | | | | | |
| 1 | ⑦ | ② | 8 | 3 | ⑨ | 4 | ⑩ | | | | | | | | | | | | |
| 1 | ⑧ | 2 | ⑨ | 3 | ⑩ | | | | | | | | | | | | | | |
| 1 | ⑨ | 2 | ⑩ | | | | | | | | | | | | | | | | |
| 1 | ⑩ | | | | | | | | | | | | | | | | | | |

**Figure 3.7** Details of a completed resistance-to-change grid

purposes, the resistance-to-change grid in Figure 3.7 consists of the first five elicited constructs in the implications grid in Figure 3.5 plus the first five laddered constructs.

Scoring the resistance-to-change grid hardly merits that description. It simply involves adding the circled numbers for each construct – remembering, of course, that when adding the circled number for construct 4, one must look at 1 to 4, 2 to 4 and 3 to 4 as well. The scoring works out as follows:

| | |
|---|---|
| 1=4 | 6=3 |
| 2=6 | 7=7 |
| 3=5 | 8=5 |
| 4=0 | 9=7 |
| 5=1 | 10=7 |

It is predicted that superordinate (laddered) constructs will have more implications (more meaning) than others, and that they will be more resistant

to change. This is demonstrated here with the elicited constructs (1 to 5) resisting change 16 times and the laddered constructs (6 to 10) resisting change 29 times. In this case, it is interesting to note that the construct which resisted change on the highest number of occasions is an elicited construct, namely *considerate of others' feelings* vs. *inconsiderate*. There is no earthly reason why a very important construct should not be elicited, but we can say that, in general terms, laddered constructs are likely to be more resistant to change than those which are elicited. This has been found by Fransella (1972) with individuals who stuttered, and by Button (1980) with those suffering from anorexia nervosa. In 2001, Neimeyer, Anderson and Stockton conducted a study specifically to look at the validity of this hypothesis. They found that constructs at the top of the ladder were what they term *existential* and had more implications (i.e. were more psychologically meaningful) than others. It is also of interest to note that, in an early study, Bender (1969) found that more important constructs (as measured by Hinkle's resistance-to-change grid) had more extreme ratings in a repertory grid than did the less important constructs. This makes sense if we accept that meaningfulness is reflected in extremity of ratings.

Yet another aspect of the implications grid that can be examined concerns what Hinkle termed 'implicative dilemmas'. Parallel implications are not really 'dilemmas', but the identification of orthogonal and ambiguous 'dilemmas' can certainly cause personal problems. These can be identified if the implications of both poles of a construct are noted. The bipolar implications grid is one way of doing this, and is described below.

Feixas, Saúl and Sánchez (2000) used the situation in which one pole of a construct implies both poles of another construct as a way of studying conflicts and the implications that these may have for reconstruing. According to these authors, their computer program GRIDCOR (Feixas & Cornejo, 1996) can show such conflicts of construing in a grid. Jones has shown how she found the resistance-to-change grid to be 'a very powerful way to help someone check out why they are finding it hard to make some decision or other' (Jones, 1994, p.25).

Metzler and G. Neimeyer (1988) used an implications grid and the resistance-to-change grid together with a ratings grid utilizing occupational constructs to look at measures of 'ordination'.

Although as yet there are no published data, practice suggests that simply asking a person to rank their personal constructs in order of personal importance yields similar results to Hinkle's more labour-intensive method. For instance, McDonagh and Adams-Webber (1987) used this method of subjective importance of constructs in their research utilizing the bipolar implications grid. Obviously this simplified procedure needs to be investigated before it is used in place of Hinkle's resistance-to-change grid in research.

As has already been mentioned, the simple act of considering how many patterns of relationships there can be between two bipolar constructs

highlights the degree to which we oversimplify when we express such a relationship as a matching score or a correlation. The identification of orthogonal and ambiguous 'dilemmas' can certainly cause personal problems. However, it is easier to identify these if the implications of both poles of a construct are noted. One way of doing this has been described and used by Fransella (1972).

## A BIPOLAR IMPLICATIONS GRID

The constructs in this grid were elicited from triads consisting of individuals known to the person. It formed part of Fransella's research reconstruction programme (Fransella, 1972) for those who stutter, and was focused on how the person saw him- or herself 'as a stutterer'. The grid in Figure 3.8 is small because this person had become much more fluent and was beginning to find that he no longer had a very clear idea of what a 'stutterer' was like.

The instructions for the bipolar Impgrid as well as the method of presentation differ from those used by Hinkle. Fransella found that the task that Hinkle set the person was too complex for non-psychology university students. This might, of course, have been due to cultural as well as individual differences in ability to perform the conceptual task. Hinkle's volunteer people were American college students, whereas Fransella's were people of wide-ranging abilities from several different countries.

The task set for the person in the bipolar implications grid is as follows. Each construct is written on a card with the elicited pole labelled 'a' and the contrast pole labelled 'b'. The resulting 12 cards in this example were then all laid out on the table. A second set of identical cards is also prepared, and each card is cut in half so that there is one pole of a construct on each of the half-cards. These half-cards are shuffled so that there is no consistent order of presentation. The person is then presented with one half-card and asked to consider the item, such as *social climbers*, and to imagine that 'all you know about a person is that he or she is *social climber*. What, from all of these other characteristics on these cards in front of you, would you expect to find in such a person?'. The cards are scanned, and when the subject comes to a construct pole that describes a characteristic they would expect to find in a *social climber* lacking confidence, they are asked to call out the construct number and the letter 'a' or 'b'. A very similar procedure has been adopted by Honess (1979) for use with children.

As with all grids, a great deal of information can be obtained from the grid itself by looking at the dispersion of X's and R's (reciprocal) or simply adding them up. It is to be expected that the 'self' side of a construct will have more meaning and therefore more implications than the 'non-self' side. Exceptions may therefore be of interest (Fransella, 1969). In the grid shown in Figure 3.8, there was one implication on the 'self' side (defined by *speaks his mind and*

Constructs

1a people who do not look away x
1b people who look away
2a people who interrupt while a person speaks
2b people who remain silent while a person speaks x
3a people who regard stuttering as lowering
3b people who do not regard stuttering as lowering x
4a people who 'see through' stuttering x
4b people who cannot 'see through' stuttering
5a tolerant people x
5b people who wouldn't waste their time
6a people who think stutterers are fools
6b people who do not think stutterers are fools x
7a 'men' x
7b can't be bothered with things that don't concern them
8a people who make good friends x
8b people who are two-faced, dishonest
9a people who are crawlers and snides
9b people who speak their minds and mean it x
10a people who are social climbers
10 b people who don't ride rough-shod over others x

Bipolar Implications Grid

| | 1a | 1b | 2a | 2b | 3a | 3b | 4a | 4b | 5a | 5b | 6a | 6b | 7a | 7b | 8a | 8b | 9a | 9b | 10a | 10b | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1a | ■ | | | x | | x | x | | x | | | R | R | | x | | | x | | R | 1a |
| 1b | | ■ | R | | | | | R | | R | | | | R | | | | | | | 1b |
| 2a | | R | ■ | | x | | | R | | R | R | | | R | | R | R | | | | 2a |
| 2b | | | | ■ | | R | x | | R | | | R | R | | | | | | | R | 2b |
| 3a | | x | x | | ■ | | | R | | | R | | | R | | | | | | | 3a |
| 3b | | | | R | | ■ | R | | | | | R | R | | | | | x | | R | 3b |
| 4a | | | | | | R | ■ | | R | | | R | R | | | | | x | | R | 4a |
| 4b | | R | R | | R | | | ■ | | R | | | | x | | | | | | | 4b |
| 5a | | | | R | | x | R | | ■ | | | R | R | | R | | | x | | R | 5a |
| 5b | | R | x | | | | | R | | ■ | | | | | | x | | R | | | 5b |
| 6a | | x | R | | R | | | x | | x | ■ | | | | | | | | | | 6a |
| 6b | R | | | R | | R | R | | R | | | ■ | | | | | | | | | 6b |
| 7a | R | | | R | | R | R | | R | | | x | ■ | | R | | | R | | R | 7a |
| 7b | | R | R | | R | | | | | x | | | | ■ | | | | | R | | 7b |
| 8a | | | | x | | x | x | | R | | | x | R | | ■ | | | | | R | 8a |
| 8b | | x | R | | | | | x | | | | | | x | | ■ | x | | R | | 8b |
| 9a | | O | O | | O | | | O | | O | O | | | O | | | ■ | | | | 9a |
| 9b | | | | | | | | | | | | | O | | | | | ■ | | | 9b |
| 10a | | x | x | | x | | | x | | R | x | | | R | | R | x | | ■ | | 10a |
| 10b | R | | | R | | R | R | | R | | | x | R | | R | | | x | | ■ | 10b |
| | 1a | 1b | 2a | 2b | 3a | 3b | 4a | 4b | 5a | 5b | 6a | 6b | 7a | 7b | 8a | 8b | 9a | 9b | 10a | 10b | |

**Figure 3.8** A bipolar implications grid. Self-referrent construct poles marked by an 'x'; implicit poles underlined. Reproduced from Fransella (1972)

*means it*) and 7 implications on the 'non-self' side (defined by *crawlers and snides*). He saw himself as someone who *speaks his mind and means it*, and many of his constructs were concerned with honesty and sincerity. However, as a stutterer he was unable *to speak his mind and mean it*, and so presumably he knew a good deal about dishonesty in interpersonal relationships.

Fransella (1972) had a very simple computer program written that provided the probabilities of the relationships between all pairs of construct poles. Figure 3.9 shows the small network of construct poles that have a probability of having a certain number of matching and mismatching ticks at less than one chance in 100 ($P < 0.01$). This made it possible to gain some idea of the main ways in which this person saw his world in relation to his speech problem.

Using a simple count of implications in relation to the total number possible, Fransella (1972) found that it discriminated significantly between the stutterers who improved to a certain level and those who did not improve in this way, or who opted out of treatment prematurely. That is, those who had a higher ratio of ticks were less likely to improve – they had a more tightly knit system about themselves as stutterers (this saturation score is discussed in Chapter 5). This finding is consistent with the work of Crockett and Meisel (1974). Using various measures derived from Hinkle's Impgrid, those researchers found that individuals with high levels of relationships between their constructs were less likely to change their construing of another person unless the invalidation was very strong. They reported that one person commented 'If I change this, I'll have to change practically everything' (Crockett & Meisel, 1974, p.298). There are relatively few implications in the grid in Figure 3.8, which is consistent with the fact that this man was becoming increasingly fluent.

As was mentioned in Chapter 2, McDonagh and Adams-Webber (1987) used the bipolar implications grid to determine whether personal constructs that are elicited early on are subjectively more important and more meaningful

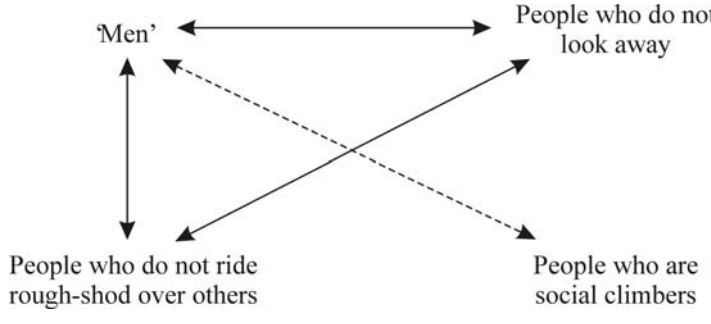


**Figure 3.9** Relationships between construct poles greater than $P < 0.01$. Negative relationships are denoted by dotted lines

than those which are elicited later. They concluded that their positive findings lent support to the construct validity of the bipolar Impgrid.

Honess (1978) regards the bipolar implications grid as being superior to the repertory grid in that the test–retest reliability is higher, it is more sensitive to changes in construing, and it is more adequate in reflecting the bipolarity of constructs. He concluded that 'The set of results obtained in this study and the unique construct relationship measures indexed by the implications grid lead to the conclusion that the implications grid should be used in preference to the repertory grid which is concerned only with construct relationships'.

Another method for statistical analysis of the bipolar implications grid is discussed in Chapter 4. Caputi, Breiger and Pattison (1990) have looked at it in terms of analysis and describe a method of *hierarchical modelling* (also discussed in Chapter 4).

It might seem that the essential feature of personal constructs, namely their bipolarity, is being ignored in this grid and could lead the way to having what Yorke (1983) describes as 'bent' constructs. This is indeed possible. On the other hand, the constructs were bipolar when they were elicited in the first place, so the argument is that their connection is not severed when they are treated separately. If that has happened, the grid analysis will show the two poles to be statistically unrelated to each other. In this case, the precise meaning that is now being attributed to the construct will be found by looking at the other construct poles that are implied. Although not reported by Fransella (1972), a retrospective look at the data reveals that the two poles of the majority of constructs are significantly negatively correlated. It is also important always to bear in mind that Kelly emphasized that the verbal label is only a rough guide to the underlying construct.

## DEPENDENCY GRID

In recent years there has been a considerable increase in discussion and use of this valuable type of grid, described by Kelly as the Situational Resources Repertory Test. As that was a rather cumbersome term, it was suggested that a better working title might be the 'Dependency Grid' (Fransella & Bannister, 1977).

In this grid form, the subject relates situations and people. The situations are those which are essentially stressful which any of us might encounter. The people are those upon whom we may call for help or on whom we may lean (Kelly, 1969c). Naturally enough, Kelly being involved, this grid does not set out to enable the psychologist to assess the degree of dependence or independence that an individual possesses relative to the general multitude. 'Everyone is dependent; the problem is to make appropriate allocations of one's dependencies' (Kelly, 1955/1991, pp.312–317/Volume 1, pp.233–237). Kelly described this grid approach as follows:

> You might list only the catastrophes in your life and then ask yourself which of the persons you had named could, if they had been available at the time, have been helpful to you in each emergency. Such a matrix provides information about one's allocation of his interpersonal dependencies – whether he has faced difficulties in which he feels no one could be of help, whether he turns to one or two persons only for all kinds of help, or whether he is indiscriminate in his selection of persons upon whom to depend.
>
> (Kelly, 1961a, p.227)

In concrete terms, the subject is presented with a list of role titles and a number of situations which are likely to be relevant. He supplies names for the role titles where appropriate, and notes the date and place against a troublesome situation. He then places a cross in those intersects showing to whom he turned for help in that situation. Alternatively, the subject can be asked to say who might be turned to if the resource had been available when the event happened. All of this is aimed at helping a person to decide 'In whom confide: on whom depend for what', as (Kelly, 1969c) entitled his chapter. An example of a dependency grid is shown in Figure 3.10.

Face inspection of such a grid yields information about whether the person calls on everyone for every kind of help or always turns to one or two people. Both of these strategies are taken by Kelly to indicate 'undispersed dependency' and to be less hopeful signs than the distribution of ticks which suggests that the person has 'specialized' their different needs among a number of people. In the above grid it appears that the person disperses her dependencies quite widely.

This grid can be turned on its head by asking the following question: 'Who turns to you for help or leans on you in what sorts of situation?'. In the psychotherapeutic or counselling setting, it can be useful to know whether a person has only one or even no person to whom he turns for help, yet seems to be submerged under a sea of people leaning (or perceived as leaning) on him. It is of interest psychologically to see whether those 'I turn to' and those who 'turn to me' are reciprocals within the two types of grid.

This form of grid needs to be worked on. For example, it is not particularly easy to think whether you would have turned to X if he or she had been around at the time of the trouble. People change. A person on whom one leaned when one was 18 years old may have changed so that one would not lean on them 20 years later, because one has changed oneself. In this case it may be necessary to develop a grid for important life stages for an individual (e.g. up to marriage and during marriage). Another difficulty is that you may be lucky enough to have had 10 years of relative calm in life, so that no 'leaning' was really needed. An 'if' dependency grid might be useful here: 'If such and such a disaster happened, to whom would you turn among those around you at the moment?'.

Another point of interest here is that, just as Hinkle's implications grid appears to have no elements, the dependency grid appears to have no

| Problems | Self | Mum | Dad | Nan | Pop | Sister | Boyfriend | Female | Boss | Minister | Neighbour | Doctor | Adviser | Teacher | Cousin |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| With vocation | X | X | X | | | | X | X | | | | | | X | X |
| With opposite sex | X | X | X | X | X | X | X | X | | | | | | X | X |
| Were unlucky | X | X | X | X | X | X | X | X | X | | X | | X | X | X |
| With finances | X | X | X | X | X | | X | | | | | | | | X |
| With illness | X | X | X | X | X | | X | | | | X | X | | X | X |
| Made serious mistake | X | X | X | X | X | X | X | X | X | | X | | X | X | X |
| With failure | X | X | X | X | X | X | X | X | X | | X | | X | X | X |
| Were lonely | X | X | X | X | X | X | X | X | X | | X | | | X | X |
| Discouraged about future | X | | | X | X | X | X | X | | X | X | | | X | X |
| Felt better off dead | X | | | X | X | X | X | X | | | X | | | | X |
| Were misunderstood | X | | X | X | X | X | X | X | | | X | | | | X |
| Were angry | X | | X | X | X | X | X | X | | | X | | X | X | X |
| Hurt someone | X | X | | X | X | X | X | X | | | X | | | | X |
| Were ashamed | X | X | X | X | X | X | X | X | | | X | | | | X |
| Were frightened | X | | | X | X | X | X | | | | | | | | |
| Behaved childishly | X | | | X | X | X | X | X | | | | | X | | X |
| Were jealous | X | X | X | X | X | X | X | X | | | | | | | |
| Were confused | X | | | | | X | X | X | | | | | | | |
| With parents | X | | | X | X | X | X | X | | | X | | X | X | X |
| With sister | X | X | X | X | X | X | X | X | | | X | | X | X | X |
| With boyfriend | X | X | X | X | X | X | X | X | | | X | | | X | X |

**Figure 3.10** A dependency grid. Reproduced from Walker (2003) by permission of John Wiley & Sons, Ltd

personal constructs. Walker (2003) argues that the constructs are implicit in the grid and can be put into words by questioning the participant.

Methods of analysis are discussed in Chapter 4.

## A TEXTUAL GRID

In the textual grid of Feixas and Villagas (1991), elicitation of both elements and constructs and the construction and analysis of a repertory grid are combined. It is a complex and important account of how autobiographical

texts might be analyzed. The authors view their analysis as being related to the storytelling approach proposed by Mair (1988, 1989). The four basic texts that they consider are letters, diaries, memoirs and autobiographies. Because their basic procedures can be seen as an adaptation of grid methods to texts, they say that they are tentatively calling the method a *textual grid*.

As an example of their method, the authors analyze Gordon Allport's (1965) *Letters from Jenny*. This is a complex method, and only an overview can be given here. First, element–construct units are identified. These are divided into three types.

(1) *Evaluative–simple*. This consists of an 'evaluative' construct and a 'simple' element – defined as a recognized nominal group representing a person. For example, *Ross is not a good son*. Here the construct is *no-good son* and the element is 'Ross'.
(2) *Meta-evaluative*. The evaluative construct is identified as described above with a meta-element. The element is one that involves a metaperception such that Y=Peter and X=Joan. For example, 'Peter thinks Joan is pretty'. The meta-perception is usually related to verbs such as *think*, *believe*, *construe*, *imagine*, and so on.
(3) *Relational*. The third unit is formed by construct and element making a relationship. It is the type that Ryle used in his dyad grid in which the elements are Peter and Joan in relation to each other, and it is expressed by a relational verb such as *love*, *admire* or *dislike*.

Three independent raters recorded one-third of the text of Jenny's letters and reached 90.5% agreement. The next stage for creating a matrix involves reducing the number of constructs and elements. This is a complicated method, and anyone who is interested in studying it further needs to read the original article.

## A QUALITATIVE GRID

Procter's grid (Procter, 2002) has no numbers in it. It was created by Procter in the context of family therapy (e.g. Procter, 1996, 2003), and he describes three forms that his grid can take. Two of these contain what people within a family think of each other. One he called the 'perceiver–element grid' (PEG), in which family members' views as perceivers are put down the side of the matrix and as perceived by other members are put along the top. In the example shown in Figure 3.11, Procter filled in the cells as construing emerged during conversations within the group. Thus there are blanks when members did not say anything about others.

Of course, this grid could equally well be filled in by individuals, and would provide a very useful way of exploring interpersonal construing. Procter also reports using a 'Perceived-dyad grid' (PDG) in which the elements along the

| | | Elements | | | |
|---|---|---|---|---|---|
| | | Mother | Andrew | Gemma | Tom (partner) |
| Perceivers | Mother | | He is aggressive<br>I wish he was less aggressive<br>They are *my* kids! | They are *my* kids! | Tom is too heavy and restrictive with Andrew |
| | Andrew | | | | Tom moans all the time<br>He's a twat!<br>I hate him<br>I wish he'd commit suicide! |
| | Gemma | | | (Gemma draws a picture of herself as angel saying 'be happy!') | |
| | Tom | | He's a rude, cheeky, aggressive disrespectful lad<br>He spoils *my* (*sic*) house | | I blow up sometimes<br>It is my DUTY to bring them up as *respectful* (and not be *soft* like my wife is) |

**Figure 3.11** A perceiver-element grid (PEG). Reproduced from Procter (2002) by permission of the author

top of the grid are dyads à la Ryle. These can be 'mother/father', 'father/daughter', and so on. Down the side of the grid are individual members of the family. For instance, there will be the mother's statements about herself in relation to her husband. Again Procter describes how this can be filled in by the family therapist, but equally it can be given to each family member to fill in individually. This yields the interesting information about how the mother sees herself *in relation to* the father and how the father sees himself *in relation to* the mother.

## COMMENT

The reader should not become mesmerized by the particular examples of grid forms that have been included here. The grid is truly a technique, and one which is only limited by the user's imagination. It should be borne in mind

that the grid evolved in the context of psychotherapy and formed part of the process of making sense of a person's life problems. For Kelly:

> The primary purpose of psychological measurement in a clinical setting is to survey the pathways along which the subject is free to move, and the primary purpose of clinical diagnosis is the plotting of the most feasible course of movement. As a whole, diagnosis may be described as the planning stage of therapy.
>
> (Kelly, 1955/1991, p.203/Volume 1, p.141)

Because of this therapeutic focus of convenience, the emphasis in grid technique was very much on interpersonal relationships. However, as can be seen in Chapter 8, its range of applicability has extended greatly, and it has often been used very imaginatively.

All forms of grid are sorting tasks which enable the subject to tell us something of the way in which he or she sees and orders the world. We need not rely on normative data for an understanding of the construct patterning that is revealed. There is no fixed content, and no one particular form is the only right one for a particular context. Finally, and perhaps most important of all, inferences are based on the assumption that statistical relationships within the grid reflect psychological relationships within the person's construing system. These psychological relationships represent something relatively stable and permanent in a person's construct system. Because of this, it is important to obey the rules of statistics when interpreting grid results. For instance, if none of the correlations in a grid with eight elements are higher than 0.4, no meaningful interpretation of construct relationships can be made, although this fact itself is a state of affairs of psychological interest. The examiner must be content with some general statement concerning this lack of structure – perhaps that the person seems confused about life, was saying that she did not want to do the grid, or was trying to convey a message that help was required. Alternatively, it could be that the grid is badly designed, perhaps with a serious range-of-convenience problem. After all, a grid of itself is nothing more than a matrix of blank cells. The skill of the designer will determine whether or not it is a 'good' grid that will answer the question which is being put to it.

Chapter 4

# ANALYZING GRID DATA

In the previous chapter various types of grid were described. In this chapter we shall examine ways of analyzing the data in these grids, principally the repertory grid, but also dependency and implications grids. Analyses of grid data range from the simple to the complex, and in order to maintain a common approach to all of the analyses considered here, technical matters relating to complex issues have been treated as endnotes to this chapter. There are also frequent references to computer programs in footnotes. Details of these programs are provided in the Appendix.

## REPERTORY GRIDS

A repertory grid contains a deceptively large amount of information. The table or matrix format that is normally used (such as that in Figure 3.4 in the previous chapter) is a compact representation. The information (or data) consists of the element figures, the construct pole labels and the things (symbols, words or numbers) that are used to indicate a relationship between an element and a construct. There can be a lot of these data. A $4 \times 4$ grid contains 28 pieces of data, an $8 \times 8$ grid contains 88 pieces of data, and a $12 \times 12$ grid contains 180 pieces of data. A $12 \times 12$ grid is not an exceptionally large grid.

Although element labels do not require analysis (as construct labels may), they do provide the grid user with information that may form the basis for other investigations with the person providing the grid information. For example, in some of the analyses of the grid shown in Figure 3.4 in the previous chapter, the element 'old flame' is shown later in this chapter to be isolated from other figures. In a counselling situation the grid user may wish

to explore this further (*see also* Chapter 7). However, the labels of the construct poles can be classified into, for instance, constructs that are 'social', 'existential' and 'moral'. Two systems for carrying out such classifications have been outlined in Chapter 2.

However, the focus of this chapter is on the data in the 'body' of the grid. These data define the relationship between elements and constructs as set out in Kelly's fundamental postulate that 'A person's processes are psychologically channelized by the ways in which he anticipates events'. The 'ways' are the constructs of the grid, and the 'events' are the elements. The emphasis in the corollaries to this postulate is directed towards the constructs, and echoing this, the ways in which grid data have been analyzed have also been focused on constructs rather than on elements.

## ANALYZING CONSTRUCTS

There are two corollaries in Kelly's personal construct theory that can be evaluated with respect to individual constructs.

(1) The Dichotomy Corollary: *A person's construct system is composed of a finite number of dichotomous constructs.* One implication of this construct is perhaps more important than the corollary itself. This implication is that a construct is *bipolar.* This more general nature of a construct permits elements to be located between the poles of a construct, and rating formulations of responses in grids take advantage of this.
(2) The Range Corollary: *A construct is convenient for the anticipation of a finite range of events only.* The importance of this corollary has again been emphasized in previous chapters.

These two issues can be evaluated by considering the statistics associated with each construct.

- A measure of central tendency, such as the *mean* or *median*, tells us something about where the person focuses their range of convenience between the construct's two poles. For binary (2-point scale) data it is the only statistic that needs to be calculated.
- Information about the range of convenience can also be obtained from the measures of dispersion, such as the *standard deviation* or the *semi-interquartile range*.

If we look at the distribution statistics for some of the constructs of our ratings grid in Chapter 3, Figure 3.4, we can make some observations about the ways in which these constructs are used (*see* Table 4.1). Since the elements were located on constructs by ratings between 1 and 7, the midpoint would be 4. All means are relatively close to this, suggesting that no constructs are lopsided (in the sense that one pole is used substantially more than the other), although the standard

**Table 4.1** Construct statistics

| Construct | Mean | Standard deviation |
|---|---|---|
| clever–not bright | 3.75 | 2.17 |
| disorganized–organized | 4.00 | 1.66 |
| listens–doesn't hear | 3.50 | 2.00 |
| no clear view–clear view of life | 4.38 | 1.49 |
| understands me–no understanding | 3.50 | 1.73 |
| ambitious–no ambition | 4.50 | 1.41 |
| respected–not respected | 3.25 | 1.64 |
| distant–warm | 4.13 | 1.83 |
| rather aggressive–not aggressive | 3.63 | 1.80 |
| Average of statistic | 3.85 | 1.75 |
| Standard deviation of statistic | 0.40 | 0.22 |

deviations show that the elements are most widely dispersed on the construct *clever–not bright* and least dispersed on the construct *ambitious–not ambitious.*

The use of statistics to make inferences about constructs is partly affected by the ways in which elements are assigned along constructs. Kelly's original grid employed binary data (ticks and blanks), and consequently he used proportions to characterize the constructs. The proportion is of course identical with the mean, and standard deviations provide no further information with binary data, since for proportions these are simply a function of the mean. Rankings have a mean which is constant (the average rank) and a standard deviation which is also a function of the number of ranks, and thus such grid data do not permit an assessment of the dispersion of elements on a construct.

Although personal construct theory does not specifically refer to the association between one construct and another except in terms of superordinate and subordinate relationships, there has always been a tradition of calculating such associations. Kelly used the number of matching ticks and blanks as his index of association. Subsequently, for rankings and ratings, forms of correlations and distances have been used. Correlations provide us with a familiar and readily interpretable index of association. In Table 4.2 we can see that *clever–not bright* is very closely associated ($r = 0.93$) with *respected–not respected*, indicating that a person who is regarded as *bright* is also likely to be viewed as *respected* and vice versa, while a person who is seen as *not bright* tends also to be construed as *not respected*. Because the constructs are bipolar and the orientation of ratings to poles is arbitrary, negative correlations indicate that the left-hand pole of one construct is associated with the right-hand pole of the other. For example, *clever–not bright* is closely but inversely associated ($r = -0.84$) with *disorganized–organized* in that an element who is seen as *clever* tends to be seen as *organized* and vice versa, while an element who is seen as *not bright* tends also to be construed as *disorganized*.

**Table 4.2** Correlations among constructs; correlations referred to are highlighted

| | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 |
|---|---|---|---|---|---|---|---|---|---|
| 1 clever–not bright | 1.00 | −0.84 | 0.92 | −0.63 | 0.80 | 0.24 | 0.93 | −0.02 | 0.07 |
| 2 disorganized–organized | −0.84 | 1.00 | −0.60 | 0.50 | −0.52 | −0.27 | −0.87 | −0.04 | −0.50 |
| 3 listens–doesn't hear | 0.92 | −0.60 | 1.00 | −0.48 | 0.90 | 0.09 | 0.80 | −0.15 | −0.23 |
| 4 no clear view–clear view of life | −0.63 | 0.50 | −0.48 | 1.00 | −0.31 | −0.62 | −0.50 | −0.20 | −0.23 |
| 5 understands me–no understanding | 0.80 | −0.52 | 0.90 | −0.31 | 1.00 | −0.05 | 0.66 | 0.02 | −0.06 |
| 6 ambitious–no ambition | 0.24 | −0.27 | 0.09 | −0.62 | −0.05 | 1.00 | 0.27 | 0.31 | 0.12 |
| 7 respected–not respected | 0.93 | −0.87 | 0.80 | −0.50 | 0.66 | 0.27 | 1.00 | −0.18 | 0.07 |
| 8 distant–warm | −0.02 | −0.04 | −0.15 | −0.20 | 0.02 | 0.31 | −0.18 | 1.00 | 0.55 |
| 9 rather aggressive–not aggressive | 0.07 | −0.50 | −0.23 | −0.23 | −0.06 | 0.12 | 0.07 | 0.55 | 1.00 |

**Table 4.3** Root-mean-square (average) correlations among constructs[a]

| Construct | Root-mean-square correlation |
|---|---|
| clever–not bright | 0.66 |
| disorganized–organized | 0.58 |
| listens–doesn't hear | 0.61 |
| no clear view–clear view of life | 0.46 |
| understands me–no understanding | 0.53 |
| ambitious–no ambition | 0.30 |
| respected–not respected | 0.62 |
| distant–warm | 0.25 |
| rather aggressive–not aggressive | 0.29 |
| Average of statistic | 0.48 |
| Standard deviation of statistic | 0.15 |

[a]These statistics were obtained with the program GRIDSTAT (*see* Appendix for contact details).

One problem with a table of correlations, such as Table 4.2, is that it presents the user with a relatively large amount of information. An indication of the average level of correlation for each can be found from the root-mean-square average for each construct (such an average indicates the magnitude without being affected by the sign of the coefficient). Table 4.3 shows these values.

It can be seen that *clever–not bright* is the construct most closely associated with other constructs overall. *Respected–not respected* is the construct next most closely associated with the others. In the early days of grid analysis, before computers became readily available, Bannister suggested that the constructs that were most highly correlated with the others could be used as the axes for a diagram in which the other constructs could be plotted in an approximation to factor analysis. A computer program was subsequently written for that method (Higginbotham & Bannister, 1983), called GAB (Grid Analysis for Beginners).[1]

More systematically we can represent the relationships among the constructs by a principal-component analysis (with varimax rotation) of the construct correlations as shown in Table 4.4. (A brief discussion of this technique is included as an endnote to this chapter.[4.1]) If we look at the substantial loadings for Component 1 (those greater than, say, 0.50), we can see that the constructs fall into two groups, the first contrasting *clever–not bright* (−0.98), *listens–doesn't hear* (−0.95), *respected–not respected* (−0.93) and *understands me–no understanding* (−0.84) with *disorganized–organized* (0.79) and *no clear view–clear view of life* (0.57). Unlike the average correlations in Table 4.3, this summary takes account of the negative correlations as shown in the factor 'bipolarity', with some component loadings being negative and some being

[1] The GAB routines are still available as part of the FLEXIGRID package currently obtainable from Finn Tschudi (*see* Appendix for contact details).

**Table 4.4** Varimax rotated principal components of construct correlations

| | Components | |
|---|---|---|
| Construct | 1 | 2 |
| clever–not bright | −0.98 | −0.13 |
| listens–doesn't hear | −0.95 | 0.17 |
| respected–not respected | −0.93 | −0.09 |
| understands me–no understanding | −0.84 | 0.13 |
| ambitious–no ambition | −0.20 | −0.64 |
| rather aggressive–not aggressive | 0.03 | −0.79 |
| distant–warm | 0.16 | −0.75 |
| no clear view–clear view of life | 0.57 | 0.54 |
| disorganized–organized | 0.79 | 0.40 |

positive[2]. This corresponds to 'clever' being opposed to 'disorganized'. It is important to note that if we had oriented all of the constructs so that the 'positive' pole was on the left-hand side of the grid, then this bipolarity would not occur. This issue is addressed in more detail later, when its impact on the relationships between elements is discussed. If we then look at the substantial loadings for Component 2 (those greater than, say, 0.40), we see a bipolarity contrasting *ambitious–no ambition, distant–warm* and *rather aggressive–not aggressive* with *disorganized–organized* and *no clear view–clear view of life*, although the contrast between 'ambitious' and 'disorganized' is by no means as readily seen.

Another way of demonstrating relationships among constructs has been through the use of a hierarchical cluster analysis of correlations, or more commonly distances. The output from such an analysis is a dendogram such as that shown in Figure 4.1. The more alike constructs are, the more they are linked to the left, and the less alike they are, the further they are linked to the right. Thus the two constructs *disorganized–organized* and *no clear view–clear view* are substantially different from the other constructs.

This representation shows similar groupings to the principal-component results in Table 4.4, with *clever–not bright, listens–doesn't hear, respected–not respected* and *understands me–no understanding* in a relatively tight cluster in comparison with the other constructs. Hierarchical cluster analysis can be performed on any measure of association, and there are many different methods of calculating the association between clusters which contain more than one variable (construct in this case). However, different measures and different methods may lead to different representations of relationships

[2] This use of the term 'bipolarity' is that of the technique of factor analysis, referring to the presence of positive and negative loadings on a factor. The divide between those shown as negative and those shown as positive is arbitrary and is decided by the computer. Kelly's use of bipolarity is a more fundamental one.

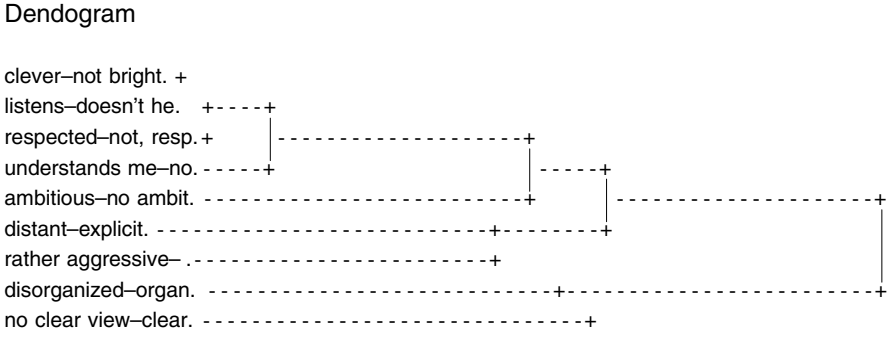


**Figure 4.1** Single-linkage (nearest neighbour) cluster analysis of city-block distances between constructs

among constructs. The options used to produce Figure 4.1 are those incorporated in one of the earliest computer programs designed to carry out clustering of grid data (FOCUS) (Thomas & Shaw, 1976), and are currently incorporated in several programs,[3] but in grid-specific packages and on the Web. They will not necessarily be the best way of doing this (there have been evaluations of the different methods of clustering – see, for example, Everitt & Dunn (2001) – though there are no clear universal advantages for any one method). However, there is some convergent method validity for this grid in obtaining a similar solution in principal-component analysis.

Analyses such as principal-component analysis or hierarchical clustering are based on measures of association between constructs, such as correlations, distances, matching coefficients, and so on. They build on the fact that such measures are essentially symmetrical – that is to say, the relationship between Construct A and Construct B is the same as the relationship between Construct B and Construct A. However, Kelly's Organization Corollary, which posits superordinate/subordinate relationships, does *not* imply that relationships between constructs are symmetrical – but rather that they are *asymmetrical*. That is, the relationship between Construct A and Construct B might be different from the relationship between Construct B and Construct A.

There are a number of coefficients of association which have asymmetrical forms. These are predictive measures rather than measures of association. The first approach to use such a measure was that of Gaines and Shaw (1980), who looked at asymmetrical relationships in a grid with dichotomous construct poles. They calculated the conditional probability of an element being at one pole of a specified construct, given that it was at a specified pole of another construct. They then constructed networks of predictive relationships among

[3] This can be done in some specialized grid programs, such as REPGRID/WEBGRID, FLEXIGRID or GRIDSTAT, or in standard computer packages such as SYSTAT (see Leach *et al.*, 2001 for an example) or SPSS (see the document on the Wiley website at www.wileyeurope.com/go/fransella).

| | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| *contact* | 3 | 5 | 5 | 1 | 1 | 5 | 1 | 1 | 5 | 1 | 1 | 5 | *solitude* |
| *progressive* | 5 | 5 | 5 | 5 | 1 | 5 | 1 | 5 | 5 | 5 | 5 | 5 | *staid* |

**Figure 4.2** Constructs differing in the extent to which they are lopsided

poles of constructs. There are a number of other measures which have been proposed for use in grid situations.[4.2]

Here we shall consider an index, Somers' *d*, which produces asymmetrical coefficients for ranking or rating data.[4] Table 4.5 shows the asymmetrical Somers' *d* coefficient values for our grid. If we look at the relationship between 5 (*understands me–no understanding*) and 1 (*clever–not bright*) we see a coefficient of 0.76 for the column relationship $5 \rightarrow 1$ and a coefficient of 0.62 for the row relationship $1 \rightarrow 5$. Thus *understands me–no understanding* predicts *clever–not bright* better than the reverse. In general, however, the constructs in this grid tend to predict each other similarly, suggesting that the relationships between constructs here are reciprocal rather than hierarchical. Thus we can have confidence in representations of relationships between constructs based on symmetrical measures such as correlations.

Under what circumstances might we expect to find asymmetrical predictive relationships between constructs? In a theoretical paper, Chiari *et al*. (1990) showed that if one construct is subordinate to another, then elements in both poles of the subordinate construct will be subsumed under one and the same pole of the superordinate construct. Implied in this is the notion that the superordinate will have more elements (subordinate constructs) at one pole than at another – that is, it will be a lopsided construct (*see* Chapter 3 for a further description of lopsidedness). Kelly also touched upon this issue in referring to the differences in allocation of elements to constructs:

> Some clients produce a protocol in which the grid is marked mostly with incidents. For them the emergent poles tend to be applicable to a majority of figures in the sample. Other clients, perhaps more discriminating in their selection of emergent constructs, produce a protocol composed of very few incidents. While the clinical study of repertory grids has not yet progressed very far, our experience suggests that there are important differences between such clients. (Kelly, 1955/1991, p.270/Volume 1, p.191)

Figure 4.2 shows two constructs from a grid used to rate occupations. The first, *contact–solitude*, has the occupations approximately evenly distributed between the poles, while the second, *progressive–staid*, is extremely lopsided.

The Somers' *d* coefficient for *contact–solitude* predicting *progressive–staid* was 0.28, while the coefficient for the reverse – that is, *progressive–staid* predicting

[4] This can be done in GRIDSTAT, or in standard computer packages such as SPSS (see the document on the Wiley website at www.wileyeurope.com/go/fransella). The former will automatically do it for all construct pairings; the latter has to be done pair by pair.

**Table 4.5** Asymmetrical predictive coefficients (Somers' *d*) for constructs (columns predicted by rows)

| Construct | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 |
|---|---|---|---|---|---|---|---|---|---|
| 1 clever–not bright | 1.00 | −0.62 | 0.88 | −0.46 | 0.62 | 0.19 | 0.77 | 0.04 | −0.08 |
| 2 disorganized–organized | −0.70 | 1.00 | −0.57 | 0.39 | −0.30 | −0.22 | −0.70 | −0.13 | −0.39 |
| 3 listens–doesn't hear | 0.96 | −0.54 | 1.00 | −0.42 | 0.79 | 0.13 | 0.71 | −0.04 | −0.17 |
| 4 no clear view–clear view of life | −0.57 | 0.43 | −0.48 | 1.00 | −0.24 | −0.57 | −0.48 | −0.19 | −0.19 |
| 5 understands me–no understanding | 0.76 | −0.33 | 0.90 | −0.24 | 1.00 | 0.00 | 0.57 | 0.00 | −0.24 |
| 6 ambitious–no ambition | 0.21 | −0.21 | 0.13 | −0.50 | 0.00 | 1.00 | 0.29 | 0.25 | 0.08 |
| 7 respected–not respected | 0.83 | −0.67 | 0.71 | −0.42 | 0.50 | 0.29 | 1.00 | −0.13 | −0.04 |
| 8 distant–warm | 0.04 | −0.13 | −0.04 | −0.17 | 0.00 | 0.25 | −0.13 | 1.00 | 0.46 |
| 9 rather aggressive–not aggressive | −0.08 | −0.38 | −0.17 | −0.17 | −0.21 | 0.08 | 0.04 | 0.46 | 1.00 |

*contact–solitude*, was 0.60. Such evidence then clearly shows that lopsided constructs are better predictors.

At one level, an analysis of this kind can be used to indicate whether symmetrical measures, such as correlations, provide an accurate representation of the relationship between constructs. If the asymmetrical measures are similar, then a correlation will be an accurate reflection of the relationship. If the asymmetrical measures differ, then the correlation will provide a misleading picture. However, in the latter case the use of Somers' *d* coefficient enables the grid user to obtain and detect superordinate/subordinate relationships in a construct system, without this being restricted to the self or verbalized links as can be found in the technique of laddering or implications grids.

## ANALYZING ELEMENTS

The analysis of data with respect to elements does not have the same links with the theory of personal constructs, except as being the events construed. However, the grid user will be interested in these from a practical point of view. Also, as was mentioned in Chapter 2, elements seem to account for more of the variance in grids than do the constructs.

First of all, there are some problems in the analysis of grid data from the perspective of elements. This is because the statistics for elements aggregate construct information, where the ratings assigned to poles are arbitrary in the sense that they depend on which elements were used in the elicitation of the construct. For example, consider the following three elements: *a teacher you liked, a neighbour you get along with* and *a teacher you disliked*. These might produce the construct *friendly–aloof*, where friendly was the explicit pole, but the triad *a teacher you liked, a neighbour you don't get along with* and *a teacher you disliked* might produce the reverse of the construct, namely *aloof–friendly.*

One solution is to ask the respondent to name the preferred poles. The construct ratings can then be adjusted so that all of the preferred poles have the rating associated with them. Another solution that is sometimes possible is to use the ratings for 'ideal self' to indicate which are the preferred poles. Our grid is shown in Figure 4.3 both in its original form and with some constructs reversed[5] or reoriented so that the element *as I would like to be* always has a rating closer to the lower end of the scale. For example, the construct *organized–disorganized* has its poles swapped and the ratings switched to the other end of the scale (by subtracting each rating from the maximum value – here 7 – plus 1). Although the construct correlations simply change sign and other construct statistics remain the same, almost all statistics associated with

[5] Sometimes this is referred to as 'reflecting' the construct poles.

| | self | my father | an old flame | an ethical person | my mother | a rejected teacher | as I would like to be | a pitied person | |
|---|---|---|---|---|---|---|---|---|---|
| clever | 2 | 1 | 6 | 3 | 5 | 7 | 1 | 5 | not bright |
| disorganized | 6 | 6 | 4 | 5 | 2 | 2 | 5 | 2 | organized |
| listens | 3 | 1 | 6 | 3 | 3 | 7 | 1 | 4 | doesn't hear |
| no clear view | 5 | 6 | 3 | 3 | 3 | 5 | 7 | 3 | clear view of life |
| understands me | 3 | 2 | 6 | 2 | 2 | 6 | 2 | 5 | no understanding |
| ambitious | 6 | 3 | 5 | 4 | 7 | 3 | 3 | 5 | no ambition |
| respected | 2 | 2 | 4 | 2 | 5 | 6 | 1 | 4 | not respected |
| distant | 3 | 3 | 7 | 3 | 5 | 1 | 6 | 5 | warm |
| rather aggressive | 1 | 3 | 3 | 3 | 5 | 2 | 5 | 7 | not aggressive |

Original Grid

| | self | my father | an old flame | an ethical person | my mother | a rejected teacher | as I would like to be | a pitied person | |
|---|---|---|---|---|---|---|---|---|---|
| clever | 2 | 1 | 6 | 3 | 5 | 7 | 1 | 5 | not bright |
| organized | 2 | 2 | 4 | 3 | 6 | 6 | 3 | 6 | disorganized |
| listens | 3 | 1 | 6 | 3 | 3 | 7 | 1 | 4 | doesn't hear |
| clear view of life | 3 | 2 | 5 | 5 | 5 | 3 | 1 | 5 | no clear view |
| understands me | 3 | 2 | 6 | 2 | 2 | 6 | 2 | 5 | no understanding |
| ambitious | 6 | 3 | 5 | 4 | 7 | 3 | 3 | 5 | no ambition |
| respected | 2 | 2 | 4 | 2 | 5 | 6 | 1 | 4 | not respected |
| warm | 5 | 5 | 1 | 5 | 3 | 7 | 2 | 3 | distant |
| not aggressive | 7 | 5 | 5 | 5 | 3 | 6 | 3 | 1 | aggressive |

**Figure 4.3** Grid with some constructs reoriented so that the element *as I would like to be* always has a rating closer to the lower end of the scale

elements change. One statistic that does not change is any kind of distance measure between elements, as noted by Mackay (1992). For this reason, distances are a 'safe' measure for examining the associations among elements (e.g. through cluster analysis), although distances are not easy to interpret in an absolute sense. If the grid user is happy with the orientation of the poles, then the usual statistics (e.g. correlations) can be interpreted in that context. However, on occasion it may not be possible to obtain a clear indication of the preferred pole, either because the grid has been collected in a setting that does not permit subsequent questioning of the respondent, or because an ideal element either has not been included or is located at the midpoint of a number of constructs. In our grid we can see that neither the extreme of 'ambitious' nor the extreme of 'no ambition' is the preferred position for the ideal figure. There the figure is located just to the 'ambitious' side of the midpoint. We could say that the preferred position is 'mildly ambitious'.

In such cases it is still possible to calculate a correlation by introducing a constant into the calculations, as shown by Cohen (1969).[6] For example, if we consider the correlations between *self* and *my father*, we find for the original grid that the correlation is 0.66, and in the grid containing the reversed constructs the correlation between the two is 0.83. Introducing the midpoint rating (i.e. 4) into the calculation as a constant gives a correlation of 0.70 in both grids.

## JOINT REPRESENTATIONS OF CONSTRUCTS AND ELEMENTS

As was indicated at the outset of this chapter, the repertory grid embodies the fundamental postulate of Kelly's theory in its use of both elements and constructs, and is described by him as being embedded in his theory (Kelly, 1959). A joint representation of both elements and constructs provides an overall picture of the grid. A number of multivariate techniques can be used for this.

### Singular-Value Decomposition

Despite its rather forbidding name, this technique is the oldest and most common method for joint representation of constructs and elements. In 1964, Patrick Slater published a monograph somewhat misleadingly entitled *The Principal Components of a Repertory Grid.* At the time, and even today, most people who are familiar with the term 'principal components' think of it as a way of analyzing correlation matrices. In fact, it is much more general than

[6] GRIDSTAT produces a matrix of correlations of this kind for elements.

this. Principal-component analysis of raw data is possible, but it is more specifically called singular-value decomposition or 'Eckart–Young decomposition'.[7] The latter name refers to the two American psychometricians who put forward the theorem in 1936. They showed that a matrix (a grid in this case) could be approximated by the product of two other matrices – one a matrix of row (i.e. construct) component loadings, and the other a matrix of column (i.e. element) component loadings. The more components that are 'extracted', the better the approximation to the original data (grid).

Patrick Slater saw that this procedure could be applied to repertory grid data. Although Slater produced further versions of the computer program that performed this analysis, the basis of the method remained as it had been in 1964. In 1964 the British Medical Research Council awarded Slater a financial grant to provide a grid analysis service. This lasted until 1973, by which time the service was processing 10 000 grids per year (Slater, 1976). At that time the computer program was distributed to university and hospital computer centres. Thus this method of analysis became the standard, at least in the UK. A two-dimensional spatial representation of constructs and elements became the accepted way of viewing the grid. A GRIDSTAT representation of our grid is shown in Figure 4.4. Other computer programs will produce somewhat different pictures.[8] There are a number of reasons for this, which are more fully discussed in an endnote to this chapter.[4.3]

The final issue concerns the orientation of the constructs, as noted before. If some constructs were reflected as shown above in Figure 4.3 to make the poles consistent and this form of the grid was analyzed, then a different picture would emerge, as shown in Figure 4.5.

One solution to this problem is to include constructs twice, each construct appearing both in its original form and in its reflected form, as shown in Figure 4.6.

The problem with labelling the construct points in diagrams such as Figures 4.4 and 4.5 is to determine which pole is represented by a construct pole point. There is no automatic way of doing this. The best solution is to return the grid as analyzed and identify an element point which is close to the construct representation on the diagram.[9] Which pole of the construct in the grid is that element close to? This is the pole to use in the representation.

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[7] Thus Slater's title was technically accurate.

[8] This can be done in a number of specialized grid programs, including WEBGRID/REPGRID, FLEXIGRID, GRIDLAB and IDIOGRID, or in general-purpose statistical packages such as SAS, SPSS or SYSTAT. These are described in the Appendix.

[9] The program FLEXIGRID asks for an ideal element before plotting the diagram to do this.


**Figure 4.4** Singular-value decomposition representation of elements and constructs

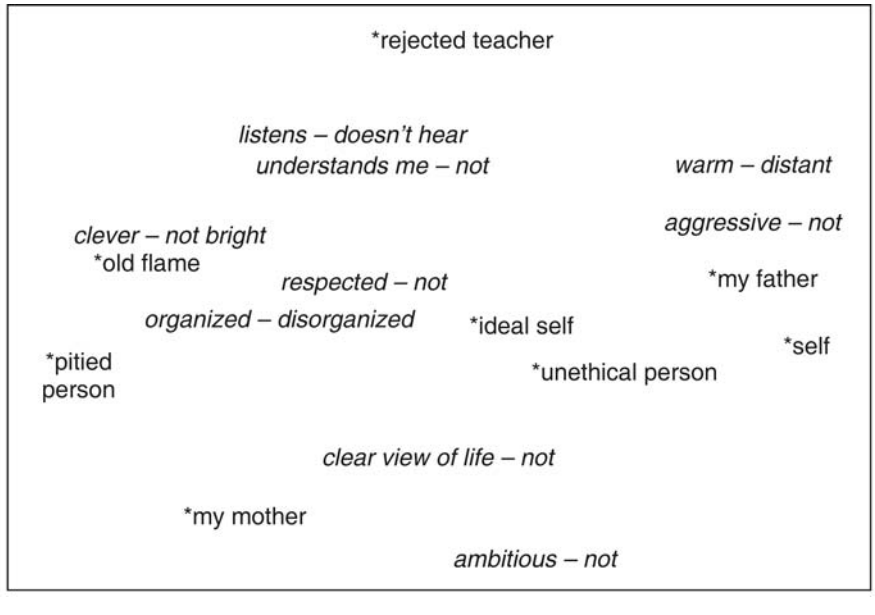


**Figure 4.5** Singular-value decomposition representation of elements and constructs, with relevant constructs reflected as in Figure 4.3

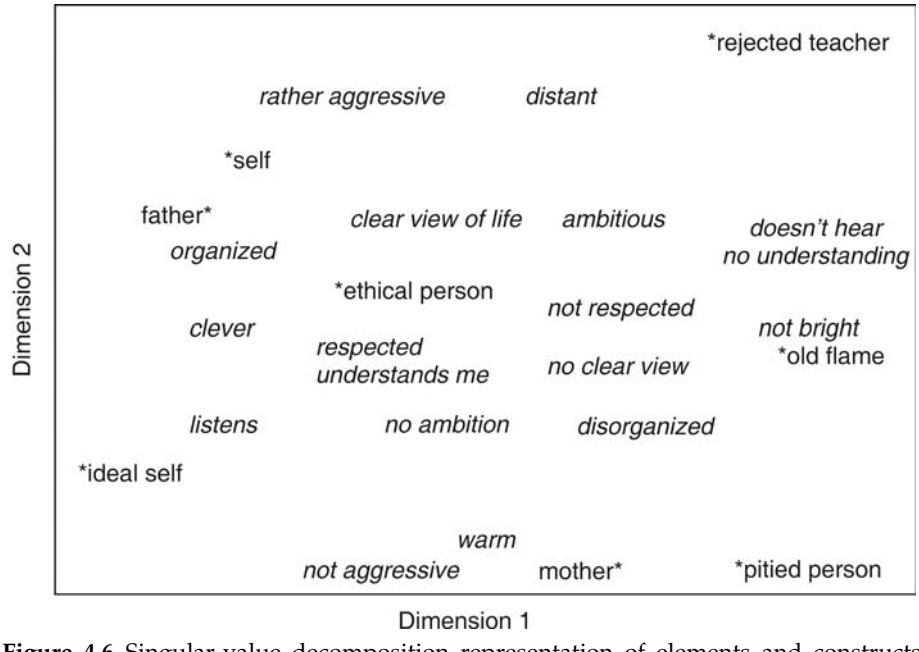


**Figure 4.6** Singular-value decomposition representation of elements and constructs, with construct poles shown separately

## Correspondence Analysis

A technique that is closely related to singular-value decomposition is the procedure now commonly known as correspondence analysis. It employs exactly the same eigen decomposition as the singular-value decomposition discussed above, but differs in the pre-scaling carried out on the grid (the issue of pre-scaling is more fully discussed in an endnote to this chapter[4.3]). The technique was originally devised for scaling of tables containing frequencies rather than ratings or rankings, although these may be analyzed by this procedure, provided that no negative ratings are used. In general, the results obtained from a correspondence analysis[10] are very similar to those obtained from singular-value decompositions where double-centring (i.e. subtracting both element and construct means) is used or the first component is discarded. Again, in correspondence analysis there is an ambiguity in identifying construct poles in a diagram, and again, the raw grid provides a way to clarify this.

[10] This can be done in some specialized grid programs, such as GRIDCOR or GRIDSTAT, or in standard computer packages such as SYSTAT (see Leach *et al*., 2001 for an example) or SPSS (see the document on the Wiley website at www.wileyeurope.com/go/fransella).

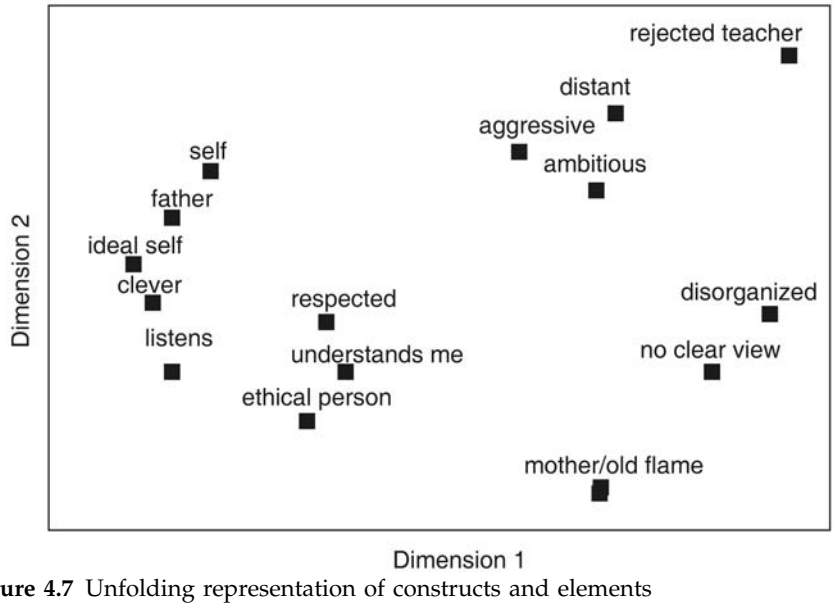


**Figure 4.7** Unfolding representation of constructs and elements

## Multidimensional Unfolding

Multidimensional unfolding is quite a different approach to providing a spatial representation of a repertory grid. It is derived from non-metric multidimensional scaling, and finds a configuration of points representing elements and constructs such that the rank order of the distances between points representing elements and a point representing a construct is the same as the rank order of the grid data for the elements on that construct. This is done simultaneously for all constructs, and leads to a representation as shown in Figure 4.7.[11]

An element point located close to a construct point is thus close to that construct pole. Unlike the previous methods, unfolding has no ambiguity with regard to identification of the construct pole shown in the diagram, since it is determined by the way in which the data are identified to the program. The data are defined either as dissimilarities or distances, such that large values mean that the element is close to the construct pole, or as similarities, where small values mean that elements are close to poles. The above configuration was obtained using procedure ALSCAL in SPSS. Unfolding is rarely used to represent grids.

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[11] This can only be done in some multidimensional scaling programs, and is not available in any specialized grid program at present. It can be performed in standard computer packages such as SYSTAT (see Leach *et al*., 2001 for an example) or SPSS (see the document on the Wiley website at www.wileyeurope.com/go/fransella).

### Other Approaches

A quite different technique was pioneered in repertory grids by Gara, Rosenberg and Mueller (1989) for identifying hierarchical sets and subsets of constructs and elements, and was based on the HICLAS algorithm of De Boeck and Rosenberg (1988). This was subsequently used by Sewell (1997) and others to examine the grids of people suffering from post-traumatic stress disorder. A drawback of the algorithm is that it is based on Boolean regression and requires binary data. Although it is not widely used, like the asymmetrical coefficients described earlier, it does produce representations of grid data that accord with the Organization Corollary.

Another approach that has attempted to circumvent the separate analyses is by clustering of elements and constructs. Although some computer cluster analyses (e.g. the FOCUS type in REPGRID) will show a grid with clustering of both elements and constructs, this in fact represents two clusterings – one computed across elements to show construct clustering, and the other computed across constructs to show element clustering. However, there are cluster algorithms that jointly cluster both elements and constructs. Leach (1981) describes such a grid analysis using a cluster algorithm devised by Hartigan (1975). Unfortunately, this algorithm creates partitions based on a user-supplied threshold for partitioning, and little information is available with regard to what would be sensible values in general.

## REPRESENTATIONS OF MULTIPLE REPERTORY GRID DATA

Grids which have some aspect in common – the same elements, the same constructs, or both the same – may be represented by variants of the approaches used to represent the constructs and elements of single grids.

These are illustrated here with four grids demonstrated by Rowe and Slater (1976, p.130). These grids had common constructs and common (though unusual) elements, as described by Ryle and Lunghi (1970) and discussed in Chapter 2. The elements were dyads that were presented reciprocally – that is, there was an element *Tom's relationship to his mother*, and another element *Mother's relationship to Tom*. However, there was a variation from the original dyad grid in that Tom appeared in each of the 12 elements. The grid was completed on two occasions by the client – once before and once after treatment, and also at those times by his therapist in the way he thought Tom had completed them. The constructs were supplied.

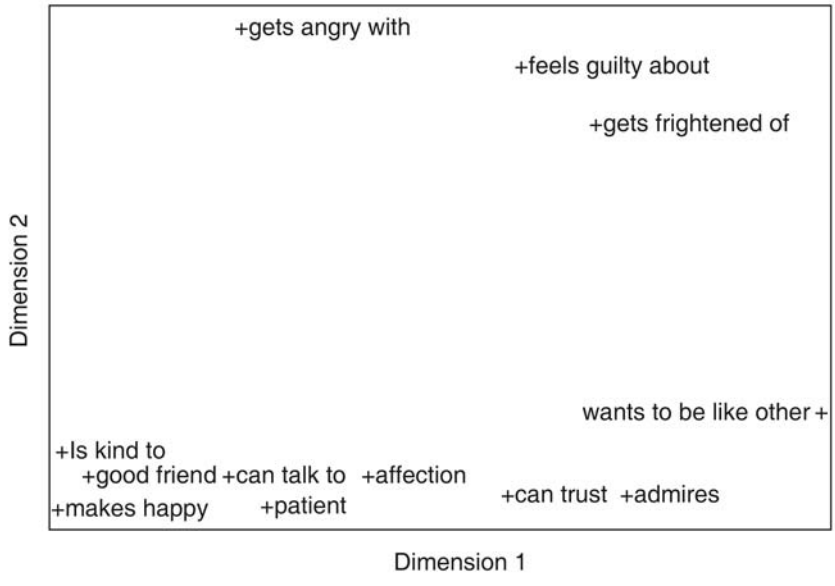


**Figure 4.8** Individual differences scaling of common constructs from four grids

## Grids With One Aspect in Common

Although the above example of a multiple grid has both elements and constructs in common, for the purpose of this illustration we shall ignore the fact that the elements were common and pretend that they were in fact unique to each of the four grids. Individual-differences multidimensional scaling allows us to obtain a common (across the four grids) representation of the constructs. Here the associations between constructs were correlations. The common configuration is shown in Figure 4.8.[12] The differences between the grids with respect to this configuration are represented by weights that stretch or compress the dimensions to accord with individual data. These are shown in Figure 4.9.

In Figure 4.8 the common configuration shows a clear distinction between the feelings of *anger*, *guilt*, *fright* and other constructs on the vertical dimension. The horizontal dimension is less easy to interpret, but there is an element of other figures involved in the constructs on the right-hand side.

In Figure 4.9, the weights for the vertical dimension show the most marked difference between Tom at time 1 and Tom at time 2, where in the latter grid there is thus a greater distinction between the feelings of *anger*, *guilt*, *fright* and

[12] This solution was obtained using GRIDSCAL, although it can be readily performed in standard computer packages such as SYSTAT (see Leach *et al.*, 2001 for an example) or SPSS (see the document on the Wiley website at www.wileyeurope.com/go/fransella).


**Figure 4.9** Individual difference weights for the four grids

other constructs at time 2 than at time 1 for Tom. This distinction is also evident in the therapist's grids. However, the difference between the therapist and Tom is basically in terms of the less clear horizontal dimension. A practical example of this kind of representation is shown in the study of anorexia nervosa by Marsh and Stanley (1995).

## Grids With Both Constructs and Elements in Common

Here we shall consider our example fully using both common elements and common constructs. The joint scaling options for a single grid (singular-value decomposition, correspondence analysis and multidimensional unfolding) all have multiple-grid counterparts. Three-mode principal components can be used to find a representation of elements, constructs and grids. (Kroonenberg (1985) provides an example using the famous semantic differential data for Eve Black/White/Grey with his TUCKALS algorithm.) The multidimensional unfolding possibility is analogous to the individual-differences multidimensional scaling solution shown above, in that there is a common representation of elements and constructs, and a representation of different weightings for grids. Figure 4.10 shows the joint unfolding configuration of elements and constructs, while Figure 4.11 shows the weights for the four matrices (these solutions were obtained via the ALSCAL component of SPSS).

We can see that both relationships *Tom & Lily* and *Lily & Tom* are associated with 'positive' constructs, but other *Tom & Other* relationships are separated

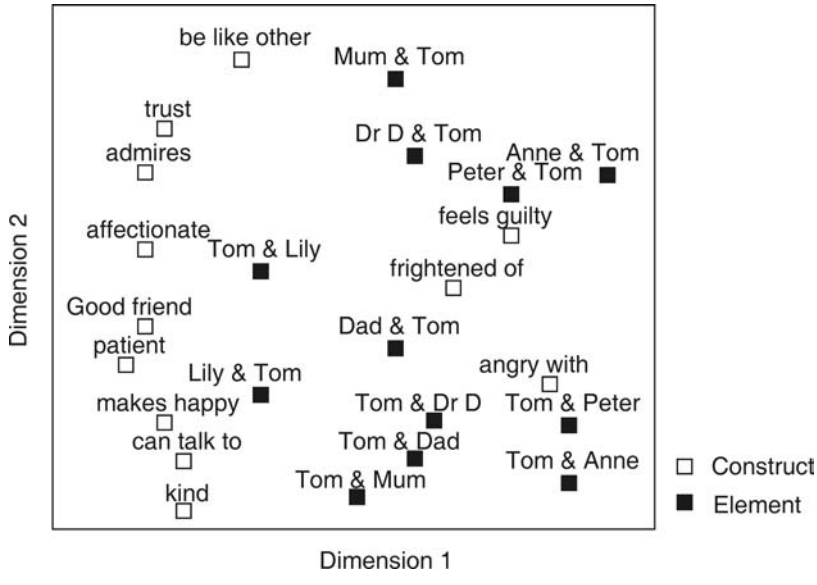


**Figure 4.10** Common unfolding configuration of both elements and constructs

from the *Other & Tom* relationships. Dimension 1 differentiates constructs (positive from negative), while Dimension 2 differentiates relationships. The weights in Figure 4.11 show that Dr D emphasizes Dimension 2 (he distinguishes more between the relationships), whereas Tom emphasizes Dimension 1 (the distinction between positive and negative constructs and the relationships he has with Lily and others).

The final option, namely the multiple grid counterpart to correspondence analysis, is the most general of all, as it also enables the grids to be sub-categorized. Thus in the present case we could see the four grids as a function of source (Tom or Dr D) and occasion (time 1 and time 2), and consequently obtain representations of elements, constructs, source and time. Such an analysis is quite complex and is rarely attempted.

## DEPENDENCY GRIDS

Although there is an increasing use of grids of this kind, there is little information about how such grids may be analyzed, other than the derivation of indices to characterize the level of dependency in the grid (these are described in Chapter 5). However, *dependency grids* may be analyzed in any of the ways that are used to analyze repertory grids. All of the standard statistics shown earlier for repertory grids may be calculated to assist in the evaluation of particular situations and resources. Dependency grids have an advantage in

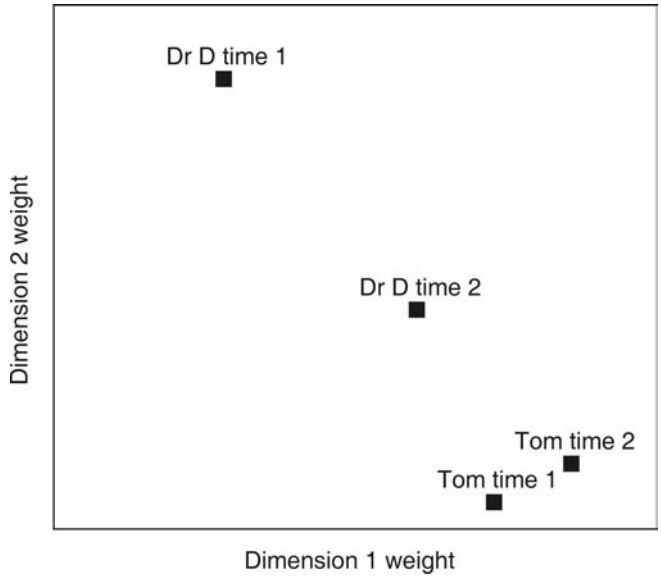


**Figure 4.11** Grid weights for common unfolding solution

that the rows of the grid (corresponding to constructs) are unipolar situations. Thus the ambiguities associated with identifying poles, and the problem of the effect of reversing construct poles, do not arise.

However, there are two disadvantages to dependency grid data. First, any situation or any resource may have unvarying ratings associated with it – that is, the resource is used in a similar way in all situations, or the situation is treated identically by all resources. Thus such situations or resources will have no variation, and standard deviations and correlations cannot be calculated. The second problem is that such grids often contain binary data (e.g. 1 = resource is available for situation, 0 = resource is not available for situation). Such data are required for some indices (e.g. the dispersion of dependency index of Walker, Ramsay & Bell, 1988; *see* Chapter 5), but are not essential to the grid itself, and can impose restrictions on the statistics calculated. Ratings may express a degree of reliance on a resource in a given situation.

Analysis of dependency grids can provide clarification of the grid data. For example, in the dependency grid shown in Figure 3.10, we may wish to know how resources are related to situations. A correspondence analysis[13] (which does not have the disadvantages listed above) can highlight this, as shown in

[13] As for ordinary repertory grids, this can be done in some specialized grid programs, such as GRIDCOR or GRIDSTAT, or in standard computer packages such as SYSTAT (see Leach *et al.*, 2001 for an example) or SPSS (see the document on the Wiley website at www.wileyeurope.com/go/fransella).

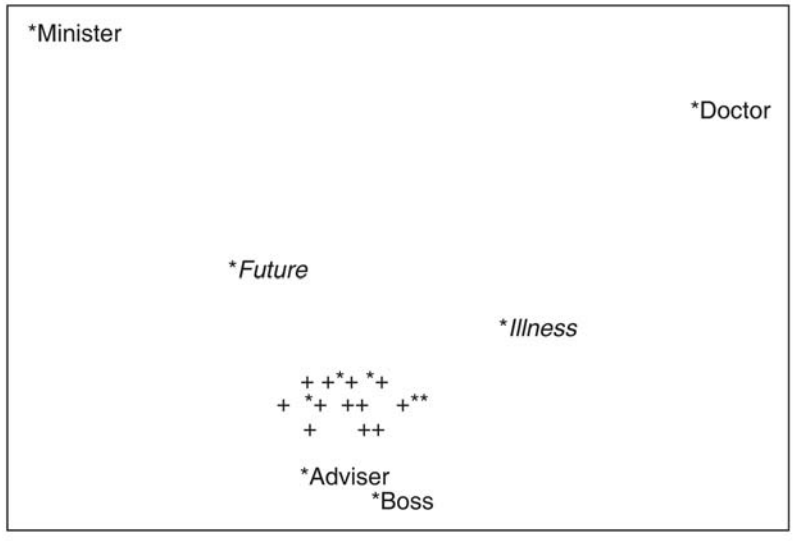


**Figure 4.12** Correspondence analysis representation of all dependency grid situations and resources

Figure 4.12. Most resources (denoted by asterisks) and situations (denoted by + signs) are not labelled, as they are in a very tight cluster in the diagram. This suggests that there is little differentiation of situations or resources in terms of dependency for most situations and most resources. Two situations, namely the 'future' and 'illness', are differentiated, as are the resources of the figures of Minister, Doctor, Boss and Adviser. It is perhaps of interest that, contrary to the response in the grid itself, this analysis shows that this person does not go to a doctor with regard to 'illness'.

It is sometimes possible to clarify the representation by eliminating some aspects of the grid from the analysis. In Figure 4.12, the points that are indistinguishable from one another may be being 'forced' to be represented as similar by their very substantial difference from the other points. Thus if we remove the 'external' resources (Minister, Doctor, Adviser and Boss) and the two situations (Future and Illness), we obtain the representation shown in Figure 4.13. In this representation the # symbol labelled 'Serious' actually represents six identically located situations (Unlucky, Serious mistake, Failure, Lonely, Sister and Boyfriend). There were two identically located resources (Self and Boyfriend, and Nan and Pop). Thus the initial representation confounded situations and resources which were identical with situations and resources that were shown to be similar, simply because of their very substantial difference from other situations and resources. Thus when we obtain a solution which indicates that there is a cluster of very similar

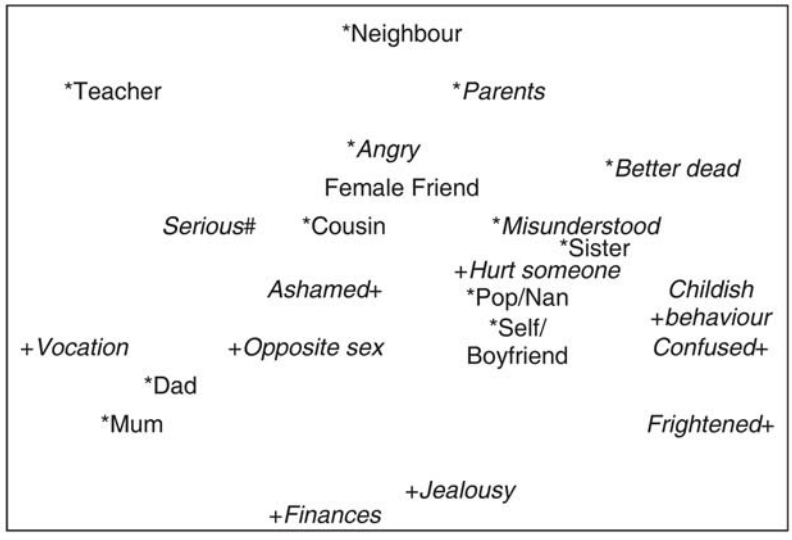


**Figure 4.13** Correspondence analysis representation of selected situations and resources

situations and resources, and some that are very different, it may well be that the similarity observed is an artefact of the analysis. This can be true for any multidimensional representation of any kind of grid data.

## IMPLICATIONS GRIDS

As was noted with regard to the asymmetrical coefficients shown in Table 4.5, there were many pairs of coefficients (i.e. A→B and B→A) which were similar, indicating that there was a reciprocal or mutual predictive relationship. A similar phenomenon is evident in the bipolar implications grid shown in Figure 3.8 (see page 74). In this grid there was a total of 127 implicative relationships out of a possible 160 (from the pairing of every construct pole with the poles of every other construct once). Of these, 84 relationships were reciprocal implications (i.e. both A→B and B→A), while only 43 relationships were one-way implications (indicating a superordinate–subordinate relationship).

Although repertory and dependency grids are similar in that they each contain two facets (construct or situations and elements or resources) and the data in each are an indication of proximity, associating elements with construct poles and resources with situations, implications grids are very different. There is only one facet (constructs or construct poles) associated with the rows (constructs as predictors) and columns (constructs predicted) of the

grid. Unlike a matrix of correlations between constructs, the data in the implications grid also differ. Here the contents of the grid are asymmetrical in that the relationship between Construct A and Construct B is not necessarily the same as the relationship between Construct B and Construct A. In fact, implications grid data are similar in one sense to the asymmetrical coefficients calculated between constructs in a repertory grid (as shown in Table 4.5), an obvious difference being that the relationship between constructs is reported by the respondent (with respect to the person) rather than calculated from the data reported by the respondent about all elements.

Another difference follows for the rules that are used when deriving implications. It would be possible to derive implicative relationships from whole constructs (e.g. 'If you knew your status on the construct *warm–cold*, to what extent would you also know your status with respect to the construct *forthright–timid*?) or from poles separately. The former procedure is associated with Hinkle's original version of the implications grid (Hinkle, 1965), and the latter with Fransella's bipolar implications grid (Fransella, 1972). These two approaches have different consequences for analysis. In addition, separate pole elicitation of implications can have different structures. Each pole may be free to imply either, none or both poles (as in the implications grid analyzed by Caputi, Breiger & Pattison, 1990), or only either or none (as in the approach of Fransella, 1972) (*see* Chapter 3). Ten Kate discusses the 16 possible structures implicit in the former approach, while in the latter approach there are nine possible implicative approaches for a pair of construct poles, shown below, and consequently 81 possibilities for any pair of constructs. These nine possibilities were first noted by Fransella (1972), although there the context was between poles of different constructs, rather than poles within constructs as here. The nine combinations are shown in Figure 4.14 (page 106) using the defining construct poles as either *explicit* or *implicit* (and providing examples of these).

If we consider a sample implications grid as shown in Figure 3.8 (see page 74), and we classify the relationships between pairs of construct poles as described above, we obtain the information[14] for whole constructs as shown in Table 4.6 (page 107).

The distribution of types of construct implication is shown in Table 4.7 (page 108).

We can see something of a pattern here. The implicit pole of the implying construct largely implies only if the explicit pole also implies, but the implicit pole rarely implies an explicit pole. The first two types, where both imply the explicit pole or cross-imply the other type of pole, are not observed in this grid.

We can also consider the pairwise categorized implication frequencies, which are shown in Table 4.8. Recall that the maximum number of pairwise combinations was 81. Only 20 of these are present in this grid. The two most

[14] All implications grid analyses were performed using IMPSTAT (Bell, 2003a).

| Construct pole type | | |
|---|---|---|
| 1. *Explicit* implies *Explicit*,<br>*Implicit* implies *Explicit* | 2. *Explicit* implies *Implicit*,<br>*Implicit* implies *Explicit* | 3. *Explicit* implies *Explicit*,<br>*Implicit* implies *Implicit* |
| 4. *Explicit* implies *Implicit*,<br>*Implicit* implies *Implicit* | 5. *Explicit* implies *Explicit*,<br>*Implicit* implies neither | 6. *Explicit* implies *Implicit*,<br>*Implicit* implies neither |
| 7. *Explicit* implies neither,<br>*Implicit* implies *Implicit* | 8. *Explicit* implies neither,<br>*Implicit* implies *Explicit* | 9. *Explicit* implies neither,<br>*Implicit* implies neither |
| **Example** | | |
| 1. *Interrupt* implies *tolerant*,<br>*Be silent* implies *tolerant* | 2. *Interrupt* implies *intolerant*,<br>*Be silent* implies *tolerant* | 3. *Interrupt* implies *tolerant*,<br>*Be silent* implies *Intolerant* |
| 4. *Interrupt* implies *Intolerant*,<br>*Be silent* implies *Intolerant* | 5. *Interrupt* implies *tolerant*,<br>*Be silent* implies neither | 6. *Interrupt* implies *Intolerant*,<br>*Be silent* implies neither |
| 7. *Interrupt* implies neither,<br>*Be silent* implies *Intolerant* | 8. *Interrupt* implies neither,<br>*Be silent* implies *tolerant* | 9. *Interrupt* implies neither,<br>*Be silent* implies neither |

**Figure 4.14** Joint construct implication types for bipolar implications grids

common mutual patterns (each occurring 11 times) are: no relation between constructs; and corresponding pole (*Explicit* or *Implicit*) implication on the part of one construct and *Explicit* pole implication of both poles on the part of the other construct.

Implication grids can be represented spatially in the same way as repertory grids, the difference being that while such an analysis of a repertory grid obtains locations for elements and constructs, a similar analysis of an implications grid finds locations for constructs as predictors and as predicted. (A consequence of this is that any computer program that can provide a spatial representation of the elements and constructs of a repertory grid can be used to show a spatial representation of the implying constructs *and* implied constructs in an implications grid.) There are different ways of showing this. We could represent constructs as single points in a one-dimensional space, axes being defined as superordinate or subordinate, or we could represent constructs twice (once as superordinate and once as subordinate) in a multidimensional space. However, in the present case, there is an additional problem in that the 'rows' and 'columns' are in pairs, and since the relationship between the poles that form this pair is not considered, there is no within-pair information. This is likely to impose a false distinction in any overall representation, and this possibility is not considered further here.

**Table 4.6** Whole constructs implication classification

| Construct | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 10 |
|---|---|---|---|---|---|---|---|---|---|---|
| 1 do not look away–look away | 0 | 4 | 6 | 3 | 3 | 6 | 3 | 5 | 6 | 6 |
| 2 interrupt–be silent | 6 | 0 | 3 | 4 | 4 | 3 | 4 | 6 | 5 | 7 |
| 3 stuttering low–stuttering ok | 6 | 3 | 0 | 4 | 6 | 3 | 4 | 9 | 7 | 7 |
| 4 see through stutter–not see through stutter | 7 | 8 | 4 | 0 | 3 | 6 | 3 | 9 | 6 | 6 |
| 5 tolerant–intolerant | 7 | 4 | 6 | 3 | 0 | 6 | 5 | 3 | 6 | 4 |
| 6 think stutterers fools–not think stutterers fools | 4 | 3 | 3 | 4 | 4 | 0 | 9 | 9 | 9 | 9 |
| 7 men–not bother | 3 | 4 | 4 | 5 | 3 | 6 | 0 | 5 | 6 | 4 |
| 8 make good friends–dishonest | 7 | 4 | 6 | 3 | 5 | 6 | 3 | 0 | 8 | 4 |
| 9 crawlers–speak mind | 6 | 5 | 5 | 6 | 6 | 5 | 4 | 9 | 0 | 9 |
| 10 social climber–not ride roughshod | 4 | 3 | 3 | 4 | 4 | 3 | 4 | 4 | 3 | 0 |

**Table 4.7** Frequency of type of whole construct implication

| Type | Frequency |
|---|---|
| 1. *Explicit* implies *Explicit*, *Implicit* implies *Explicit* | 0 |
| 2. *Explicit* implies *Implicit*, *Implicit* implies *Explicit* | 0 |
| 3. *Explicit* implies *Explicit*, *Implicit* implies *Implicit* | 21 |
| 4. *Explicit* implies *Implicit*, *Implicit* implies *Implicit* | 23 |
| 5. *Explicit* implies *Explicit*, *Implicit* implies neither | 9 |
| 6. *Explicit* implies *Implicit*, *Implicit* implies neither | 21 |
| 7. *Explicit* implies neither, *Implicit* implies *Implicit* | 6 |
| 8. *Explicit* implies neither, *Implicit* implies *Explicit* | 2 |
| 9. *Explicit* implies neither, *Implicit* implies neither | 8 |

A more important way of representing implications grid data is by the mapping of implication relationships. We could try to represent the 127 implicative relationships in our implications grids by a process of trial and error. This would be a long and arduous process, if it were possible at all. What is needed is some way of identifying the important patterns in the implications grid (in much the same way as we use a small number of dimensions to represent a repertory grid). Fransella (1972) used a form of conditional probability measure to provide a very simple way of viewing which construct poles were closely associated with each other. The program that performs this is available on the Wiley website, and an example can be found in Chapter 3 (*see* page 75, Figure 3.9). Caputi, Breiger and Pattison (1990) have devised a procedure that that is based on transitivity. If construct pole *i* implies construct pole *j*, which in turn implies construct pole *k*, then if construct pole *k* implies construct pole *i* we would have an intransitive relationship between these three construct poles. By identifying such intransitivities, related implications could be adjusted by the degree of intransitivity associated with an implicative relationship and the model reconsidered. The percentage of transitive relationships in the grid considered here was only 24%. Caputi and colleagues then used a second step which further adjusted the implication by the other related implications (for construct poles *i* and *j*, consider all other possible relationships, *ik* and *jk*, and modify *ij* if necessary). Using this procedure on our implications grid produced a group of construct poles that were all mutually implicative. This group then has implicative relationships with three other construct poles as shown in Figure 4.15.

## COMMENTS

Repertory and other grid data are like any other data collected from a single person. It is impossible to analyze data from an individual unless there are

**Table 4.8** Co-occurrence of whole construct implication patterns

| Type | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 |
|---|---|---|---|---|---|---|---|---|---|
| 1. *Explicit* implies *Explicit*, *Implicit* implies *Explicit* | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 2. *Explicit* implies *Implicit*, *Implicit* implies *Explicit* | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 3. *Explicit* implies *Explicit*, *Implicit* implies *Implicit* | 0 | 0 | 1 | 0 | 1 | 0 | 2 | 0 | 4 |
| 4. *Explicit* implies *Implicit*, *Implicit* implies *Implicit* | 0 | 0 | 0 | 4 | 0 | 1 | 0 | 1 | 0 |
| 5. *Explicit* implies *Explicit*, *Implicit* implies neither | 0 | 0 | 11 | 0 | 1 | 0 | 5 | 0 | 2 |
| 6. *Explicit* implies *Implicit*, *Implicit* implies neither | 0 | 0 | 0 | 1 | 0 | 1 | 0 | 0 | 7 |
| 7. *Explicit* implies neither, *Implicit* implies *Implicit* | 0 | 0 | 7 | 0 | 3 | 0 | 0 | 0 | 0 |
| 8. *Explicit* implies neither, *Implicit* implies *Explicit* | 0 | 0 | 0 | 4 | 0 | 0 | 0 | 0 | 7 |
| 9. *Explicit* implies neither, *Implicit* implies neither | 0 | 0 | 8 | 0 | 7 | 1 | 0 | 11 | 0 |

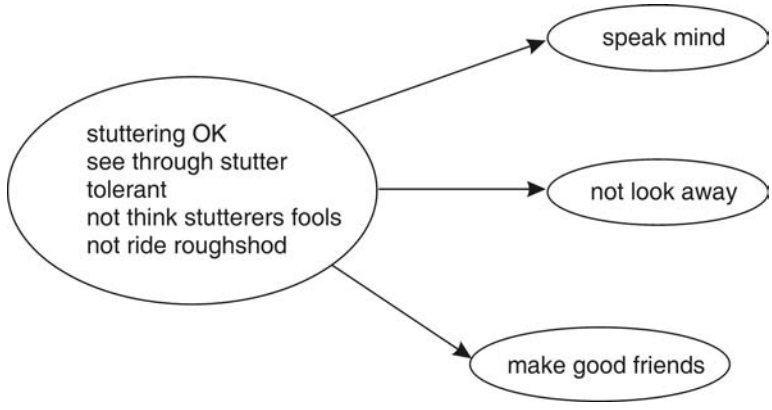


**Figure 4.15** Transitive implications in a bipolar implications grid

replications, and the repertory grid (and its variants) provide the necessary replications by collecting data from two facets of a grid. Each facet can be used as a replication for the other. Consequently, ordinary forms of data analysis are appropriate in the grid context. This has not been widely recognized in the past, and an array of ad hoc procedures has been developed (although many of these masked more conventional procedures, such as Slater's INGRID innovation). Although this chapter has featured analyses using GRIDSTAT, which is a grid-specific program, such analyses could be performed with most of the statistical packages that are now generally available.

The same concerns that apply in situations involving more general data analysis apply here, too. The number of replications in a grid analysis is not large. Statistical testing would be difficult, and fortunately is not usually necessary, since we do not want to generalize beyond the specific snapshot provided by the grid of a given person at a given time.

Similarly, we do not want to over-analyze the data. To take principal components as an example, we could fully replace the grid by considering as many components as there are elements (or constructs). This would simply transform the grid into an uncorrelated set of components which would be uninterpretable and unequal in terms of their contribution to the reproduction of the raw grid. With the substantial computing power that is now available in desk and laptop computers, it is to be anticipated that future analyses will be guided by benchmarks provided by random permutations of the grid data. The use of random data as a benchmark is not new, but it is not widely utilized in grid analyses.

One useful strategy is to consider different ways of representing the same structural feature of a grid. If the same picture emerges, then it is likely to

reflect the actual grid structure, rather than being an artefact of the method that was used to derive the structure. In general, however, it is important to remember the cautions raised by Don Bannister, who was arguably the first person to address the task of providing a comprehensive quantitative analysis of repertory grid data.

In the introduction to the *GAB Computer Program for the Analysis of Repertory Grid Data* (Higginbotham & Bannister, 1983), he stated the following:

> . . . The grid, by its nature, generates enormous amounts of data from each individual subject, and the computer has made the whole enterprise much more manageable. . . . However, the computer analysis of grids has also threatened to make the grid method itself curiously arthritic. The popularity of standard computer packages for analysing grids has tempted psychologists to make their hypotheses and modes of exploration the servant of a computer program, rather than the reverse. If a standard computer program processes the subject's grid so as to yield 'loadings on components' or 'element distances', then, if such is truly the focus of your psychological interest, all is well. If you proceed to centre your argument upon such measures *because they are yielded by the computer program* and not because they are central to theoretical issues which are at stake for you, then all is not well. Your argument should tell you what to count; your counting method must not be allowed to dictate your argument.
>
> (Higginbotham & Bannister, 1983, p. 2)

## ENDNOTES

4.1 There are many technical issues associated with the use of principal components. Formally, it is a technique for finding a weighted composite of variables such that the weighted composite accounts for as much variance as possible. A second weighted composite may also be found accounting for a maximum of the remaining variance, and a third one, and so on. Correlations between the original variables (here constructs) and the components are commonly interpreted as factor loadings. However, such loadings are not unique, and it is routine in the use of this technique to rotate the factor loadings so that the solution approximates a simple structure, where components tend to have some high loadings and others that are near to zero. The rotated factor loadings account for the correlations between the constructs exactly as the unrotated factor loadings do.

4.2 Gara, Rosenberg and Mueller (1989), better known for their use of the HICLAS algorithm with grids, introduced the use of an asymmetrical variant of the *phi* coefficient to examine the superordinate–subordinate relationships between figures in free response data, and this was subsequently used with grids created from autobiographical texts by Feixas and Villegas (1991). There are a number of other asymmetrical indices that have been used with grid data. For example, Smithson (1987) used some fuzzy predictors that he derived which had proportionate-reduction-in-error (PRE) interpretations to produce diagrams of predictive networks in a similar manner to Gaines and Shaw (1980). Other similar asymmetrical measures can be found in major statistical packages in cross-tabulation routines, including Guttman's lambda for categorical grid data (such as Kelly's ticks and blanks).

4.3 However, there are several issues which influence representations such as this. The first of these concerns pre-scaling. If singular-value decomposition is performed on the raw grid data, then the first component tends to be very similar to the mean values. In our grid, the positions of elements on the horizontal axis (the first component) correlate by 0.998 with the element means, while the similar correlation for constructs is 0.922. In order to remove the effect of the means on the configuration, it is necessary to pre-scale the raw grid by subtracting relevant means. This issue has received attention in other applications of singular-value decomposition (e.g. Ross, 1964). However, it has been largely overlooked in repertory grid applications. Rathod (1981) is a notable although theoretical exception, while Beail and Fisher (1988) have presented some comparisons between results from different programs, which show such differences, although they do not identify the differences as including the pre-scaling issue. In Slater's procedure, construct means were subtracted, but the element mean effect remained. Some repertory grid computer programs, such as FLEXIGRID (Tschudi, 1993) and GRIDSTAT (Bell, 1998a), allow for adjustment of both element and construct mean effects (this is called 'double-centring'). Another solution is to analyze the raw grid but then to discard the first component (Ross, 1964). Figure 4.6 was produced using this approach.

The second issue is unfortunately technical and relates to the process of principal components, which begins by decomposing the matrix into eigenvalues and eigenvectors. Component loadings are formed by multiplying the eigenvectors by the square root of the corresponding eigenvalue. In ordinary principal-components analysis (of a correlation matrix) this is simple because there is only one set of eigenvectors, which is multiplied by the square root of the corresponding eigenvalue. However, in singular-value decomposition there are two sets, namely column (element) eigenvectors and row (construct) eigenvectors, together with a single set of singular values (which are the square roots of the raw eigenvalues). These form a product which approximates to the data matrix (grid). Thus to form component loadings we can transform the element eigenvectors (by multiplying them by the corresponding singular value) and not transform the construct eigenvectors, or we can transform the construct eigenvectors (by multiplying them by the corresponding singular value) and not transform the element eigenvectors, or we can transform both sets of eigenvectors by multiplying each by the square root of the singular values. This last option is often termed 'symmetrical normalization'. Figure 4.6 was produced using this approach. Only rarely would a grid user wish to utilize the other transformations.

Chapter 5

# SOME SUMMARY MEASURES OF STRUCTURE

> We can arrange those events according to some issue – or construct – placing those to which one pole of the issue is more appropriately applied on the one side and those to which the other pole is more applicable on the other. Having done that, we can scramble the events and rearrange them in terms of another construct. As this rearranging proceeds, each event becomes locked into psychological space in greater depth. That is to say, an event seen only in terms of its placement on one dimension is scarcely more than a mere datum. And about all you can do with a datum is just let it sit on its own continuum. But as the event finds its place in terms of many dimensions of consideration, it develops psychological character and uniqueness.
>
> (Kelly, 1969d, p.118)

In the previous chapter we saw how grid data could be summarized to provide less complex pictures of constructs and elements and the relationships between them. In doing this, there was of course a loss of information in the raw grid, which had been traded for this clarity. In this chapter we shall consider approaches that take this simplification even further, producing single summary measures of the grid. This is comparable to the standard psychological measurement procedure for producing a total test score. However, it is different in that the summary measure here is not based on a simple sample of test items, but on structured data involving both the ways in which we construe things and the things that we construe. Such summaries have their place in research or practice when we wish to make simple comparisons or decisions, but do not give clues as to how or why the index is the way it is. For this we still go back to more complex representations and the original grid data.

## COGNITIVE COMPLEXITY

This notion has predominated as a summary measure for grids, and was first propounded by Bieri (1955) in an article entitled 'Cognitive complexity–simplicity and predictive behavior'. This title strongly reflects a personal construct theory approach, with its emphasis on prediction and its bipolar construct of 'complexity–simplicity'. It is therefore not surprising that the measurement approach proposed by Bieri was based on the repertory grid. A definition of this measure is given in Chapter 3.

Unfortunately, the bipolar emphasis has been lost, with the term now being more simply referred to as 'cognitive complexity'. The distinction has also been reinterpreted by Crockett (1965) and others as one of 'differentiation' and 'integration'. This changing of labels has led to some confusion in the literature.

Since Bieri's first initiative, a number of alternative methods have been developed for generating an index of this cognitive complexity.

### Bieri's Index of Cognitive Complexity

Bieri's original method of scoring is by far the most commonly used, and can be summarized as follows. The ratings in a grid are compared element by element for each pair of rows (constructs). Whenever there is exact agreement between ratings, a score of '1' is given. These scores are summed to provide an overall index. The more agreement there is, the higher the score, and the lower the degree of cognitive complexity. This index has two drawbacks. The first is that an index based on a sum will depend on the size of a grid. Some researchers have attempted to overcome this problem by insisting on a standard-sized grid (Menasco & Curry, 1978; Schneier, 1979; Spengler & Strohmer, 1994). Another approach might be to calculate an average based on the size of the grid.

The second problem is that the index is based on simple matching. This was (and still is) appropriate for grids with binary data, as there are only two possibilities – 'match' or 'non-match'. All pairs classified as 'match' are equally alike, as are all pairs classified as 'non-match'. For a rated grid, all pairs classified as 'match' are equally alike, but all pairs classified as 'non-match' need not be. Consider the matching between the last two constructs in our grid (*see* Figure 3.4), namely *distant* vs. *warm* and *rather aggressive* vs. *not aggressive*:

| | | |
|---|---|---|
| Distant | 3 3 7 3 5 1 6 5 | Warm |
| Rather aggressive | 1 3 3 3 5 2 5 7 | Not aggressive |

There are three matches and five non-matches. However, the non-matches are not identical with each other. Two differ by one rating, two differ by two

ratings and one differs by four ratings. Some 'non-matches' – those differing by only one element pair – are more like 'matches' (which differ by no pairs) than other 'non-matches' (which could differ by up to six pairs for these ratings). A further problem can occur if one of the constructs is reversed. Consider the first two constructs as shown in two forms of the grid in Figure 4.3, where the second construct, *disorganized–organized*, is reversed in the second version. In the original grid there are no matches, whereas in the second version there are two matches.

Measures which could overcome both of these problems involve calculation of the differences between pairs of ratings and summing these. For example, summing the absolute distances (i.e. ignoring the plus or minus sign) provides a measure of the city-block distance between two constructs. City-block distances are so called because in this method of measuring we treat one construct as a direction (such as North–South) and the other construct as a direction at 90 degrees to it (such as East–West). We can map the elements so that they are defined by these two directions. For example, let us consider the elements from our grid, *self* and *as I would like to be* (i.e. *ideal self*) and locate them on axes defined by the constructs *ambitious–no ambition* and *rather aggressive–not aggressive*. Figure 5.1 shows this simple picture.

We can see that *self* and *ideal self* are different; *self* is *aggressive* but has no *ambition*, whereas *ideal self* is less *aggressive* and has more *ambition* (but is not over-ambitious). How do they differ overall? We can measure this by the distance between them, either as the Euclidean distance (a straight line) as shown in Figure 5.2a, or as a city-block distance as shown in Figure 5.2b.

City-block distances are not in a direct line (as in Euclidean distance), but are measured in steps (like making the trip between the two in a city). City-block distances are used in some programs (e.g. REPGRID/WEBGRID), and are easy to calculate by hand. In the above example, the city-block distance between *self* and *ideal self* is four horizontal units of *aggressive–not aggressive* (i.e. *ideal* rating of 5 minus *self* rating of 1) plus three vertical units of *ambitious–not ambitious* (i.e *self* rating of 6 minus *ideal* rating of 3), giving a total of 7 units. The corresponding Euclidean distance is 5 units. If we reversed the constructs, these distances would not change.

One of the problems with distances is that they are dependent on the scales used. For example, if they were rated on a scale from 10 to 60, the city-block distance would be 70 and the Euclidean distance would be 50. However, the correlation would be the same. Standardizing is sometimes advocated as a way of overcoming this, but it may remove information. Fifty years ago Cronbach and Gleser (1953) pointed out in another context that the similarity of two profiles (e.g. in the present context ratings across constructs for two elements) was affected by three factors, namely shape, scatter and level. Shape is the pattern of 'high' and 'low' ratings, scatter is their variation about an average, and the level is that overall average. Distances capture all three qualities, while correlations focus on the similarity of the pattern of ratings.

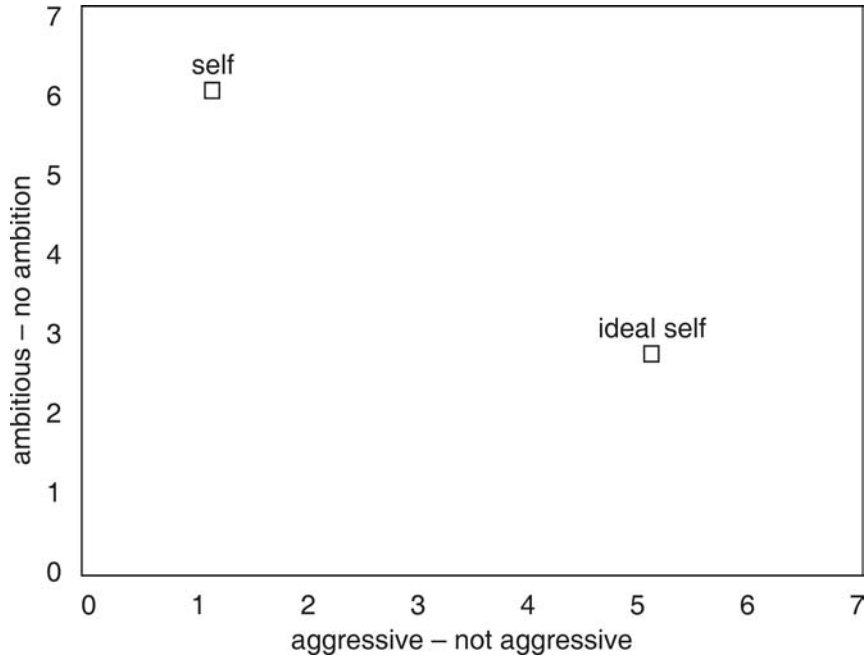


**Figure 5.1** Locating elements in a space defined by two constructs

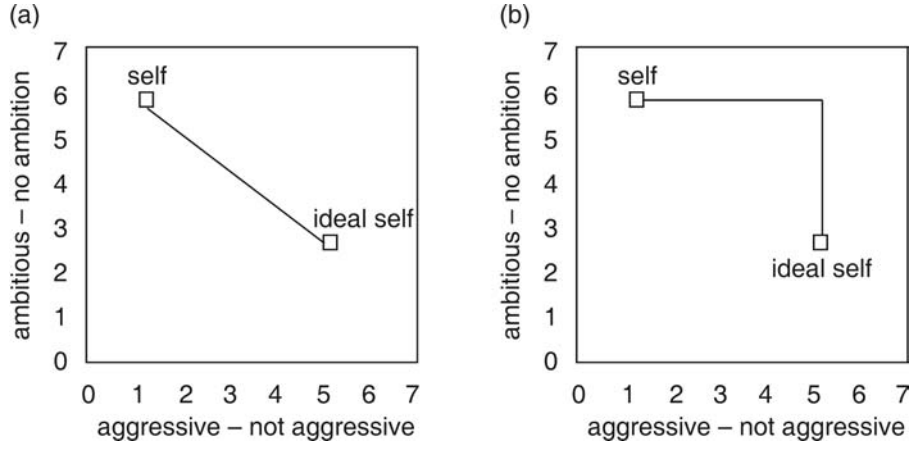


**Figure 5.2** (a) Euclidean and (b) city-block distance between elements

Standardizing data also gives distances that reflect the difference in patterns. The difference in patterns may be the important thing. If respondents use the scale for different constructs in different ways, similarities and differences in patterns may well be masked.

## Landfield's Functionally Independent Construct (FIC) Index

An index similar to that of Bieri was developed by Landfield (Landfield, 1971; Landfield & Cannell, 1988). It was designed to work with bipolar 13-point grid ratings (i.e. −6 through 0 to +6), and involved reclassifying ratings as left side (−6 to −1), uncertain (0) or right side (+1 to +6), counting the matchings of the left and right side and subtracting a correction factor if the midpoint ratings were too high. Each construct's relationships were then assessed according to a threshold as being either functionally independent or not. The degree of functional independence in the grid is the number of functionally independent constructs. It can readily be seen that information is lost at two levels – in the recategorization of ratings and in the application of a threshold. Soldz and Soldz (1989) have also expressed concern about the possible bias inherent in the midpoint correction. Nevertheless, the index has been relatively widely used in North America.[1]

## Average Correlations (Bannister's Intensity Measure)

Bannister (1960) proposed assessing what he defined as the 'intensity' of construct relationships in a grid by finding the sum of the rank correlations (these were squared to eliminate the effect of the sign of the correlation) and rescaling by multiplying by 100. This reduces the loss of information, which was a problem for the FIC index, although using rank correlations with interval ratings still results in loss of some information. Like the FIC index, the use of a total rather than an average makes the size of the measure partly dependent on the number of constructs. As with Bieri's index, the more loosely-knit the constructs (the lower the correlations), the more complex is the person's construct system. Bannister termed this 'intensity,' drawing on Kelly, for whom a construct used in a 'tight' way was one that leads to unvarying predictions, whereas one used in a 'loose' way leads to varying predictions.

Intensity is one of the measures that has been shown to discriminate between people diagnosed as thought-disordered schizophrenics (when they are construing people) (Bannister & Salmon, 1966b) on the one hand, and both other psychiatric and 'normal' groups on the other. The lower the intensity score (i.e. the lower the correlations), the more disordered (loose) one's thinking is (Bannister & Fransella, 1965). In order to avoid those with thought disorder being construed as *very* cognitively complex, Bannister used

[1]The FIC index is available in the GRIDCOR program of Feixas and Cornejo.

a test–retest correlation as a second measure. Unlike other individuals, the thought-disordered person does not retain the limited cognitive structure that he or she had on the first occasion of completing the grid.

Kelly was not arguing that loose construing is itself pathological, and indeed he pointed out that in some contexts the person who can deal with social relationships in a relatively differentiated way may be more successful. This is a little complicated by the fact that Kelly used the term 'loose' to refer both to the relationships between constructs and to the relationship between a construct and its associated elements (Bell, 1996). However, the essence of Kelly's argument is that we loosen, then tighten and then loosen our thinking in a cyclical manner, and he used this as his definition of creativity. Our aim is first to gain a perspective and then to become concrete enough to define our themes operationally and so regain a new perspective. Bannister is arguing that thought-disordered individuals have become exclusively loose in their construing (certainly where thinking about people is concerned), and are unable to tighten their thinking into plans for action.

A similar and more widely used average measure is the root-mean-square product–moment correlation. This has the advantage of producing an average which takes into account negative values, but is easier to interpret in that it produces an index on the scale of the original correlations. A problem with this (as with any average) is that it may mask contradictory patterns among the correlations. Table 5.1 illustrates this by showing hypothetical correlation patterns among two groups of four constructs. Both have the same root-mean-square value of 0.52 (and the same intensity scores of 162), but they are derived from very different patterns of correlations and can be interpreted very differently psychologically.

A solution to this problem was proposed by Bannister (1960), who suggested that an old statistic, the coefficient of variation, could be used to describe the variation and level of construct relationships as it involves the ratio of the standard deviation and the mean. However, this has not been used. Another solution is to model the correlations in a more sophisticated manner (e.g. with a principal-components analysis).

**Table 5.1** Hypothetical construct correlation matrices with the same root-mean-square correlation but differing patterns of construct relationships

| | Heterogeneous construct relationships | | | | Homogeneous construct relationships | | | |
|---|---|---|---|---|---|---|---|---|
| | 1 | 2 | 3 | 4 | 1 | 2 | 3 | 4 |
| 1 | 1.00 | – | – | – | 1.00 | – | – | – |
| 2 | 0.90 | 1.00 | – | – | 0.52 | 1.00 | – | – |
| 3 | 0.00 | 0.00 | 1.00 | – | 0.52 | 0.52 | 1.00 | – |
| 4 | 0.00 | 0.00 | 0.90 | 1.00 | 0.52 | 0.52 | 0.52 | 1.00 |

### Variance Accounted for by the First Principal Component of the Construct Correlations

In an unpublished thesis, Jones (1954, cited by Bonarius, 1965) first proposed that the 'explanation power of the first factor' can act as a measure of cognitive complexity. Bell (2003b) has shown that, unlike the average correlation approaches, this approach is able to distinguish between different patterns of construct relationships as shown in Figure 5.1, although it is not infallible.

### Analysis of Variance Approaches

This was first utilized by Vannoy (1965), who used the interaction term of an analysis of variance of a repertory grid (with elements and constructs as main effects). Subsequently, Bell and Keen (1980) suggested that intraclass correlations, standardized measures derived from an analysis of variance, could be used to indicate the complexity of the element relationships as well as the complexity of construct relationships. Bell, Vince and Costigan (2002) used these indices to demonstrate that in a large number of grids drawn from different contexts, there was a general tendency for elements to be structured in a more complex manner than constructs. This suggests that we should perhaps pay more attention to the elements, as can be seen later in this chapter.

### Approaches Based on Clustering

In an early influential review of this concept, Crockett (1965) distinguished between differentiation and integration, seeing them as different types of measures (rather than bipolar opposites). Smith and Leach (1972) took this up with the development of a complex measure of integration based on hierarchical cluster analysis. However, such a measure might be expected to relate to the explanatory power of the first component. An earlier approach by Makhlouf-Norris, Jones and Norris (1970) proposed a system termed 'articulation', which simply identified construct groupings by the size of the correlation between them. This required some criterion for classifying (they used significantly greater than zero at the 0.05 level), and suffers from the same problem as many systems for identifying structures in the grid, namely the structure obtained being a function of the arbitrary criterion chosen.

### Other Measures

Two other measures of cognitive complexity are simply the number of constructs, and Scott's index $H$ from information theory. The interesting feature of these alternatives is that they are common methods of assessing self-complexity in other settings (Rafaeli-Mor, Gotlib & Revelle, 1999),

self-complexity being defined as the complexity of one's views about oneself. They have rarely been used in grid situations. Kalthoff and Neimeyer (1993) used both the FIC index and Scott's index (Scott, 1969) with a trait sorting task, and Crockett's count of constructs measure to test a common proposition that self-complexity acts as a buffer against depression. They found that only Scott's index for the trait-sorting task supported the buffer hypothesis.

## Comparisons and Predictive Value

Since most of these measures of cognitive complexity can be readily calculated from the same repertory grid, it is not surprising that there have been a number of studies correlating the indices themselves (e.g. Adams-Webber, 1970; Kuusinen & Nystedt, 1976; Epting *et al*., 1992; Feixas *et al*., 1992). Since most measures are in some way a summary of relationships between constructs, it is also not surprising that the summary measures are themselves usually correlated, and these studies in general confirm this.

However, the study by Kuusinen and Nystedt (1976) was somewhat more complex, involving multiple conditions under which the indices were calculated, and finding that in general there were weak relationships. Relationships between these measures and Crockett's number of constructs have been confined to comparisons with Bieri's index (usually shown to be more weakly related to others of this kind) where there has been little or no relationship demonstrated (e.g. Kline, Pelias & Delia, 1991) (*see also* Crockett, 1982, for a summary of previous research).

There have been a number of studies that show consistency of these measures over time. More recent studies include those by Caputi and Keynes (2001), Feixas *et al*. (1992), Smith (2000) and Spengler and Strohmer (1994). For example, Smith (2000), in an admittedly small sample, found correlations higher than 0.80 over 6 and 12 months (for a further discussion of this, *see* Chapter 6).

Unfortunately, there is less clear evidence for the predictive validity of these measures. Crockett's review in 1982 concluded that the evidence for the predictive validity of Bieri's index was mixed, and there have been no major predictive studies since then. Evidence for his own measure, namely the number of constructs elicited, has been stronger, although it is restricted to communication (e.g. Applegate, Kline & Delia, 1991; Kline, Pelias & Delia, 1991) or interpersonal issues (e.g. Burleson, Kunkel & Szolwinksi, 1997; Leichty, 1997; Adams-Webber, 2001).

## Conclusions: Cognitive Complexity Measures

There is no general agreement that one measure of cognitive complexity/differentiation/integration is better, more useful or more valid than another. If you need to have such a measure for the interpretation of your grid results,

then several factors should be involved in your choice. In part it will be dictated by the method that is most easily available (although this is less of a problem than it has been in the past, as most grid-specific computer packages and general statistical packages are able to compute many of these). More importantly, your choice should be dictated by those with whom you wish to communicate. Although the functionally independent construct (FIC) index is well understood in the personal construct community in North America, it is less well understood elsewhere, and indices derived from more common procedures (e.g. correlations) will be better understood. Finally, the nature of the data in the grid may influence your decision. Lack of variance in a construct will preclude the use of ordinary correlation (although the intraclass correlation may still be computed).

## EXTREMITY AND ORDINATION

Interest in the extent to which people tend to use the extreme points on bipolar scales as opposed to the more central points led for a time to another relatively discrete area of research. One explanation of the tendency to use extreme points on a scale is that it indicates pathology or maladjustment (e.g. O'Donovan, 1965; Arthur, 1966; Hamilton, 1968), although Bonarius (1971) suggested that the issue cannot be isolated, as ratings result from a complex interaction between element construct and person rating. Others have seen it as a measure of personal meaningfulness of the scales. As was discussed in Chapter 3, this is related to the fact that more extreme ratings are usually found on constructs elicited from the subject than on constructs supplied to him or her (e.g. Mitsos, 1961; Landfield, 1965, 1968; Bender, 1969, 1974a; Warr & Coffman, 1970). This of course may simply be a function of the triadic elicitation procedure which will tend to place two elements close to one extreme and the third element close to the other extreme. This may be exaggerated if the instructions use the term 'opposite' rather than 'different', as was discussed in Chapter 3. Furthermore, if these elements are defined by role titles which are themselves valued (e.g. 'a pitied person', 'a person of the opposite sex whom I like'), this tendency may be accentuated. Other factors such as triadic vs. dyadic or 'opposite' vs. 'different' construct elicitation procedures that may also have an impact have been discussed in Chapter 2.

Extremity has also been linked to the certainty or confidence that accompanies such ratings. Hetherington (1988) conducted a two-part study with extremity indices calculated from one grid and sureness ratings taken from another grid, finding a correlation between the two of 0.61.

In relation to this, Landfield (1977) describes a measure termed 'ordination'. Each person rates elements (people) on 13-point scales defined by bipolar constructs. The central point is given a score of zero, and the other scores range from 1 to 6 on either side. Assuming (and this is arguable) that the more

extremely an element is rated the more meaningful it is, then the more extreme scores a construct receives, the more superordinate that construct is. Landfield's score of ordination for a construct is obtained by first noting the number of different levels of extremeness. For example, if elements have been rated as 0, 2, 4 and 5 on the construct *rigid–flexible*, the score is 4. This is multiplied by the difference between the highest and lowest rating (i.e. 5 in this case), which gives the construct an ordination score of 20. Scores for the elements can be obtained in the same way. However, this index has not fared well in some evaluations (e.g. Chambers, Grice & Fourman, 1987).

Although it has yet to be investigated thoroughly, a more relevant aspect of extreme scoring is found in the one-sided (or lopsided) use of ratings (*see* Chapter 3).

### Conclusions: Extremity Measures

This has been a neglected area of research in the repertory grid technique, despite the probable importance of the characteristics involved. As yet there are no apparently satisfactory ways of measuring extremity of ratings.

## CONFLICT

Slade and Sheehan (1979) proposed assessing conflict between constructs in a grid by adapting the technique of Lauterbach (1975) for assessing conflict between concepts. In Lauterbach's use of Heider's (1946) balance theory, three concepts are assigned positive or negative valences, and balanced triads of concepts have either a pattern of all positive valences or a pattern of one positive and two negative valences (in algebraic terms, the product of the signs in these two cases is positive). Imbalanced triads have either all negative valences, or two positive valences and one negative valence (again, in algebraic terms, the product of the signs in these two cases is negative). In Figure 5.3a, the triad is balanced, while in Figure 5.3b the triad is imbalanced (I go for parties, don't like bad times, but alas I associate parties with bad times).

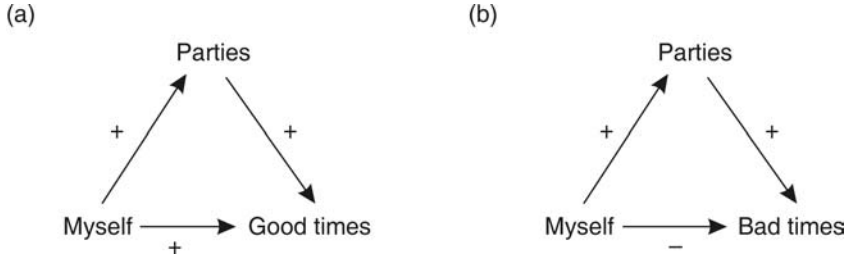


**Figure 5.3** Examples of (a) balanced and (b) imbalanced triads

Slade and Sheehan (1979) proposed using triads of the signs of correlations among three constructs in a similar fashion. However, Winter (1983) found that the percentage of imbalance triads of constructs was highly correlated with measures of cognitive complexity. One issue arising from this measure is the correlational level at which a triad is designated as 'balanced' or 'imbalanced'. If all correlations are used, whatever their size, then correlations of 0.01 and −0.02 and 0.03 will be said to be imbalanced. However, most would agree that those correlations are very likely not to be significantly different from zero, and should therefore not be taken into account as indicating any relationship. It is suggested that perhaps the level at which triads are used as a measure of conflict should be at the 5% level of significance determined by the number of elements in that particular grid.

However, Bassler, Krauthauser and Hoffman (1992) have suggested that the problem lies with the use of the sign of the correlation, not its size or magnitude, and they suggest a modification to the procedure which would take account of the latter. In a subsequent empirical evaluation of 140 grids from psychiatric patients, Krauthauser, Bassler and Potratz (1994) found that large numbers of imbalanced triads were rare, and that the presence of imbalanced triads was affected by the number of constructs (more constructs led to more imbalanced triads) and the number of elements (fewer elements led to more imbalanced triads). Monolithic construing was also associated with more imbalanced triads. Krauthauser, Bassler and Potratz also suggested that the term 'conflict' may not be an appropriate descriptor, and that 'contradictions' might better describe the imbalances identified.

Another measure of conflict or ambivalence that could be used with specific types of grids in which figures were seen as both elements and constructs was suggested by Fransella and Crisp (1970) (*see* Chapter 2). Using Slater's INGRID analysis, it was noted that on a measure of 'distance', element and construct pairs (the same verbal labels) varied according to the type of label. For example, 'my ideal self' as construct and as element was seen in very similar terms, whereas there were often very large distances between the construct and the element 'me at a normal weight' for anorexic patients. It was suggested that the extent of the distance could be related to ambivalence. The subject was somehow ranking the elements on the construct 'me at a normal weight' differently from the way in which she was using the element in the rankings on other constructs. This idea has been examined further as part of a larger study (Fransella & Crisp, 1979).

## Conclusions: Conflict Measures

All that can be said at present about measures of conflict or ambivalence derived from different types of grid is that the search is interesting and – it seems to us – worthwhile but as yet speculative.

## ELEMENT INDICES

### Integration Between Self and Others

The discrepancy between actual and ideal self is more broadly associated with the self-discrepancy theory associated with Higgins and his co-workers (e.g. Higgins, 1987). However, it has also played an important role in repertory grid usage, being first noted by Jones (1961) with regard to 'self' figures as elements (e.g. 'me now', 'me in 6 months', 'actual self', 'ideal self'). The notion has subsequently been used in clinical research by Makhlouf-Norris and others (e.g. Makhlouf-Norris & Jones, 1971), who used the distances between designated elements (often utilizing the figures of 'actual' and 'ideal' self as reference axes). However, the range of distances that can be calculated depends on the rating scale used in the grid. Norris and Makhlouf-Norris (1976) used random data in grids to provide a 'baseline' reference. Slater (1977) devised an expected distance which could be used to rescale individual distances so that they were comparable. However, Hartmann (1992) showed that this correction did not take into account the number of constructs considered, and suggested a further correction. A subsequent empirical evaluation (Schoeneich & Klapp, 1998) supported this change.

It is worth noting that *actual–ideal* distances have been shown to be stable over a period of 3 or 4 weeks (Caputi & Keynes, 2001; Feixas *et al*., 1992).

### Element Differentiation

Earlier it was noted that in using the intraclass correlation as a measure of cognitive complexity, such an index could also be calculated for elements. A small intraclass correlation would indicate that elements were very different. For our example grid, an intraclass correlation of $-0.078$ was obtained, indicating that elements were very different. However, this index does not provide any information on an element-by-element basis, as we could see in the construct intensity measures, where average correlations could be used to provide information about each construct separately. (However, it is important to be aware that the scaling of an intraclass correlation and an average product–moment correlation will give very different values and cannot be directly compared.) Ordinary correlations cannot be used for elements, of course, as they will change if construct poles (and associated ratings) are swapped over. This has led to the use of distances as in the research discussed above. The problem with distances is that they reflect the scale used in rating, and cannot be easily interpreted in any standard way. A solution to the problem with element correlations was noted in Chapter 4, where the introduction of a constant into the correlation computation led to coefficients which were invariant over construct pole swapping. It is possible

Root-mean-squared (RMS) construct-invariant element correlations

| | |
|---|---|
| 0.51 | self |
| 0.65 | my father |
| 0.40 | an old flame |
| 0.52 | an ethical person |
| 0.26 | my mother |
| 0.42 | a rejected teacher |
| 0.51 | as I would like to be |
| 0.47 | a pitied person |
| | |
| 0.47 | Average of statistic |
| 0.10 | Standard deviation of statistic |

**Figure 5.4** Average element correlations (independent of construct polarity)

to compute averages for these correlations as shown in Figure 5.4 for our example grid[2].

We can see that the figure of 'father' is most strongly related to other elements while the figure of 'mother' is least closely associated with them, and that the overall element differentiation is quite high, with a coefficient of 0.47. This index is new here, and as yet there has been no research evaluation of it. However, since it parallels the construct intensity measure, it should prove useful in the future.

## Golden Section Constants

One of the most robust indices is that attached to the allocation of self and other figures to positive and negative poles of constructs. In 1976, Benjafield and Adams-Webber found that people tended to see others as similar to themselves 62.5% of the time. This particular number is a ratio commonly found in pleasing art works of the past, and is known as the *golden section*. This finding, together with the observation that people describe others in positive terms 62.5% of the time, has been replicated many times. Adams-Webber (1990) has summarized much of this work, although subsequently he has developed a model of 'self-reflection' with three premises (Adams-Webber, 1997a). The first is that all evaluations of others involve self-comparison. The second premise is that there are three levels of information processing, and the third premise is that at each level, the amount of information is maximized.

[2]The indices can be calculated with GRIDSTAT.

This last requirement is operationalized as the Shannon–Weiner information measure $H$ (where $H=-\log_2 p$). In the simple case, $H$ will be at a maximum of 1.0 when $p$ is 0.5. Adams-Webber used the repertory grid with dichotomous data to determine these proportions. Of course, since these are constants, they are of little use in considering relationships with other variables, but they have been used as the basis for conjectures about the possible mental models for such judgements, although Adams-Webber (2000) speculated about some developmental and clinical consequences (for a discussion of some of these, *see* Chapter 2).

### Conclusions: Summary Element Relationships

The relationships between elements in repertory grids would appear to provide important information for both the clinician and the researcher. Summaries of these relationships could also be useful in some circumstances. It is thus perhaps unfortunate that, with the exception of Adams-Webber's work, there has been little sustained research on these issues.

## MEASURES OF SUPERORDINACY

This derives from the theoretical proposition that constructs are organized into systems.

> Not only are the constructs personal, but the hierarchical system into which they are arranged is personal too .... One construct may subsume another as one of its elements .... When one construct subsumes another, its ordinal relationship may be termed superordinal and the ordinal relationship of the other becomes subordinal.
>
> (Kelly, 1955/1991, p.56/Volume 1, p.39)

However, just as there is nothing that is only an element and nothing that is only a construct, so no construct is either superordinal or subordinal, for:

> ... the ordinal relationship between the constructs may reverse itself from time to time. For example, 'intelligent' may embrace all things 'good' together with all things 'evaluative', and 'stupid' would be the term for 'bad' and 'descriptive' things; or, if the other kind of subsuming is involved, 'intelligent' might embrace the construct evaluative vs. descriptive, while 'stupid' would be the term for the good vs. bad dichotomy. Thus man systematizes his constructs by concretely arranging them in hierarchies and by abstracting them further. But whether he pyramids his ideas or penetrates them with his insights, he builds a system embracing ordinal relationships between constructs for his personal convenience in anticipating events.
>
> (Kelly, 1955/1991, pp.57–58/Volume 1, p.40)

Superordinacy is a relative term. A construct is seen as being more or less superordinate more or less of the time. Most investigations of superordinacy

have taken place with the implications grid and laddering procedures of Hinkle (1965) (*see* Chapters 2 and 3). Hinkle used the notion of implication to characterize the relationship between superordinate and subordinate constructs. In Chapter 4 it was shown how measures of asymmetry could be calculated as predictive relationships between constructs. Implication and prediction are similar asymmetrical ways of characterizing relationships between superordinate and subordinate constructs (another similar term used by Gaines and Shaw to indicate asymmetrical relationships between superordinate and subordinate constructs is 'entailment').

Bell (in press) has suggested that the asymmetrical predictive coefficients can be summarized into an index which indicates the degree of asymmetry of prediction between constructs in a grid by correlating the average predictor coefficients for constructs with the average predicted coefficients. Since all coefficients are involved in both averages, any imbalance between predictor and predicted coefficients for one construct must be offset by other imbalances in the other direction. A grid which is largely asymmetrical will have many such imbalances and a low correlation between predictor and predicted averages, while a grid that is essentially symmetrical will have a high correlation between predictor and predicted averages (i.e. these averages will be similar). Bell showed that there were higher levels of asymmetry (lower correlations) in 111 grids obtained from recovering psychotic patients and 175 grids about recruitment advertisements from insurance salespeople than in grids from 120 students concerning occupations or acquaintances.

In Chapter 2 we discussed how superordinate constructs can be elicited through the process of laddering. Assuming that the respondent did not ladder from all construct poles, the number of 'ladders' and the number of 'steps' within those 'ladders' could be taken as an overall measure of the degree of superordinate–subordinate relationships in a construct system. However, such indices would have to take into account how 'basic' or concrete an initiating construct pole was, since beginning with a construct that was already implicitly fairly superordinate would quickly lead to the most superordinate construct.

## MEASURE OF INTRANSITIVITY

Given that asymmetrical measures of prediction or implication can be derived from repertory grid data, it ought to be possible to assess the transitivity/intransitivity of relationships between constructs. If Construct A predicts Construct B and Construct B predicts Construct C, then we would expect Construct A also to predict Construct C. If Construct C predicted Construct A, we would be uncomfortable. Such a finding would indicate intransitivity among the relationships between Constructs A, B and C. Such

an issue also pervades the entailment modelling of Ford and Adams-Webber (1991), Gaines and Shaw (1980) and Smithson (1987), although it is not dealt with in any of those analyses. However, since intransitivity demands directed relationships (i.e. A implies B, B does not imply A), implications grids provide direct data for an assessment of this (unlike such relationships in repertory grids, where this is based on calculated indices rather than the actual grid data).

Bannister and Salmon (1966a) devised a method for scoring what they termed 'intransitivity' within a resistance-to-change grid, which can be examined without recourse to computer analysis. If a person says that he would rather change on Construct B than on Construct A, and he would rather change on Construct C than on Construct B, then logically he should be more prepared to change on Construct C rather than on Construct A.

### Conclusions: Measures of Superordinacy and Intransitivity

This issue has not attracted much consistent attention within repertory grid research, although recent developments appear promising.

## IMPLICATIONS GRIDS

### Saturation Scores

Fransella (1972) used a modification of Hinkle's implications grid, namely the bipolar Impgrid (*see* Chapter 3), to look at integration within a subsystem of constructs.

The basis of the saturation measure was Hinkle's statement that 'The total number of implications in the range of implications of a construct could be used as a measure of the meaningfulness of that construct '(Hinkle, 1965, p.17). The only difference was that she looked at construct subsystems and not single constructs (e.g. the subsystem of constructs focused around 'me as a stutterer'). Using a bipolar implications grid, the score is a simple arithmetic count of the actual numbers of implications between constructs stated to exist by that person. This is then expressed as a percentage of the total number that it is possible to obtain in a grid of a particular size.

Fransella showed that the saturation score was related to whether or not stutterers improved. Stutterers whose speech improved by 50% or more had significantly lower saturation scores ($P < 0.001$) on their grid to do with being a stutterer than did those who did not improve so much or who ended treatment prematurely. Honess (1978) found that this score (which he termed 'total implication') had a test–retest correlation of 0.79. Leitner and Grant (1982) found that the more 'ordinating' (the degree to which a construct relates to other constructs) the construct *myself as overweight* vs. *myself as not overweight*

was at the start of the group, the less weight loss occurred during the programme. If ordination is similar to Fransella's 'saturation' score (Fransella, 1972), then that finding is similar to the results found by Fransella for individuals who stutter.

The saturation score is a global measure, rather like the total number of dependencies in a dependency grid. However, as was shown in Chapter 4, the saturation score can be broken down to provide information about the types of implication relationship in such a grid. Although this has been discussed theoretically by ten Kate (1981), this is the first time such an analysis has been attempted, and it is thus too early to predict how such measures might be used in both applied and research settings.

### Transitivity

The absence of intransitivity (or the presence of transitivity) is the motivating principle behind the implications grid model proposed by Caputi, Breiger and Pattison (1990). Although they do not propose a standardized index of the level of such relationships in an implications grid, it is evident that the criterion they use could be adapted to provide such an index. In this type of analysis of our bipolar implications grid in Chapter 4, it was shown that the average level of transitivity per construct pole pair was only 24%.

### Conclusions: Implication Grid Measures

Implications grids have not been widely used. The absence of satisfactory measures to summarize aspects of the structure of such grids may well have been partly responsible for this.

## DEPENDENCY GRIDS

Kelly drew attention to the differences people show in their patterns of dependence on others. He distinguished between children who depend on few people (their parents) in all situations and the mature adult who sees his or her dependency as involving 'a much wider range of people and objects' (Kelly, 1955/1991, p.868/Volume 2, p.218). The undispersed dependency of the child is also seen in adults, commonly during illness, but also as a characteristic and potentially maladaptive way of coping with the world. The way in which the dispersion of dependence should be characterized has posed a problem. Early approaches (e.g. Beail & Beail, 1985) used simple counts of the number of resources used. Unfortunately, this does not

distinguish between resources used in only one situation and resources used in all situations. An index of the dispersion of dependency (DDI) was proposed by Walker, Ramsay and Bell (1988).[5.1] Those researchers showed that this index distinguished between prototypical dispersed and undispersed dependency grids, and found that low dispersion of dependency was associated with pre-emptive and impermeable construing. Subsequently, Bell (2001) has suggested using another index from information theory, namely the uncertainty index, which overcame some of the potential problems with the earlier index.[5.2]

In the dependency grid described in Chapter 3 and represented in Chapter 4, 81% of possible dependencies were indicated as existing. The DDI coefficients (for a sample size of 10) were 5.44 and 7.44 for situations and resources, respectively, both of which (as postulated by Walker, 1997) are high values. The corresponding values for the uncertainty index were both 0.99, indicating that there could be no certainty in the allocation of dependency. This grid was regarded by Walker (1997) as an instance of a relatively dilated *un*dispersed pattern of dependencies. Bell (2001) demonstrated that neither the DDI nor his uncertainty index could distinguish between dilated undispersed dependency and a 'healthy' pattern of dispersed dependency, and showed that it was possible to differentiate between the two patterns by using a standard statistic, namely the uncertainty coefficient, which quantifies the relationship between situations and resources.

## COMMENT

One problem with the use of summary measures which is rarely addressed is that very often the optimal level of functioning of the construing system is *not* the maximum value of the index calculated. This issue was alluded to in Chapter 4, where it was mentioned that the extreme pole position on a construct may not be the preferred position. Here, for example, any measure of cognitive complexity will not necessarily distinguish between a complex system of constructs and a maladjusted fragmentary system of constructs, as has been demonstrated by Bannister. Another problem is that many measures have no clear threshold for distinguishing between an acceptable value and an unacceptable value. One solution, pioneered by Slater, is the use of the analysis of random data to provide a baseline as a reference. However, this approach has not been widely used, and in any case it only gives an idea of which value an index might attain in a totally fragmented system.

Summary indices such as intensity imply that there may be at least some value in nomothetic data – the trick is not to become hypnotized by it. This issue is discussed further in Chapter 7.

## ENDNOTES

5.1 Walker, Ramsay and Bell (1988) used Smith and Grassle's (1977) Diversity Index (DI). This index was originally devised to provide a measure of the expected number of species contained in a random sample of population, and can be defined as

$$DI = \sum_{i=1}^{k} \left[ 1.0 - \frac{C(N - n_i,\, DS)}{C(N, DS)} \right]$$

where $k$ is the number of resources, $DS$ is a predetermined sample size, $N$ is the total number of dependencies in the grid and $n_i$ is the number of situations in which resource $i$ is depended on.

5.2 A possible drawback to the diversity index in a clinical or single-case setting is that this index has no standard metric, and is on a scale determined by the sample size $DS$, so may be difficult to interpret in isolation. Furthermore, the sample size must be smaller than the number of dependencies in the grid, which could be a problem for grids with small numbers of dependencies. Bell (2001) suggested using an index first proposed by Scott (1969) as a measure of the structure of cognition, and used subsequently by Linville (1987) as a measure of self-complexity. It is thus equivalent to cognitive complexity as a concept. The index is neatly defined by the following difference:

$$\text{Log(total dependencies)} - \Sigma\text{(dependencies by resource)} \times \text{Log (dependencies by resource)}. \quad (1)$$

Hays (1973, p.750) defines this as the 'average amount of information' in a nominal-level distribution, and remarks that it is analogous to the variance of an ordinary interval-level distribution. This index also does not have a standard scale. Bell suggested calculating the maximum possible value as follows:

$$\text{Log(total dependencies)} - \text{(total dependencies)} \times \text{Log } \{\text{(total dependencies)}/k\} \quad (2)$$

and creating an index that lies between zero and one, and which can be interpreted as the proportion of maximum possible dispersion displayed by the grid, by finding the ratio of equation (1) to equation (2), terming this an uncertainty index. High values indicate that we cannot be certain whether a resource is used in a given situation.

Chapter 6

# RELIABILITY AND VALIDITY

> While the twin concepts of 'reliability' and 'validity' were useful guidelines for pioneer test constructors, they seem of later years to have rigidified – it is as if we were suffering from what Kelly called the dread disease of hardening of the categories.
>
> (Bannister & Bott, 1973, p.161)

Here we shall look at those hardened categories to see what has been done with regard to determining the reliability and validity of repertory grids and their measures, as well as how these terms are construed from a personal construct psychology perspective.

## RELIABILITY

> The repeated stress on the need for reliability in psychological measures is a sign of the only half-realized but persistent dominance of trait psychology and the belief that what we must seek and find are fixed characteristics of an object rather than an understanding of process . . . . The most obvious feature of persons is that they change, and grievous though this may be to the champions of reliable psychological measurement, it must be recognized that we must seek to understand change and to measure our degree of understanding by the degree to which we can predict it.
>
> (Bannister & Bott, 1973, pp.161–162).

### The Meaning of the Term

When people talk about the reliability of a measure, they often seem to hover between various definitions of the term. Sometimes they seem to be talking very generally of the capacity of a measure to 'reliably' assess a characteristic, whether or not the 'amount' of the characteristic is changing in the person. At

other times they seem to mean by 'reliability' the tendency of a test to produce exactly the same result for the same person at different times. One can imagine circumstances under which the second definition could be regarded as a reasonable operational form of the first definition – for example, when it is assumed that the characteristic is relatively stable and unchanging for a given person (e.g. the height of an adult). However, since much of life is about change, the second definition stated as a requirement of a measure becomes fatuous when it is universally applied. A thermometer which steadily recorded the temperature of a given person as 98.4 degrees Fahrenheit would not be much of an asset to medicine. The overall aim is surely not to produce stable *measures* – stability or instability exists in what is measured, not in the measure. Our definition of reliability here is, as Mair (1964) put it, to do our best to assess *predictable* stability and *predictable* change.

The above paragraph may labour the obvious, but psychologists have so worshipped 'reliability' that the obvious needs labouring. Stability is often assumed to be 'the normal state of affairs'. Thus we are taught to expect stability of intelligence test scores for an individual adult person over time unless some unusual event such as damage to the person's brain has occurred. Equally, trait psychology has strengthened the myth of 'unchanging man'. Change is of the essence. The person, in Kelly's terms, is 'a form of motion', not a static object that is occasionally kicked into movement.

If we consider different forms of grid to be attempts to enquire into a person's construct system, then under what circumstances would we expect stability or change? If we were to investigate your notions of the rules of arithmetic from time to time, we might expect to find a very high degree of stability. Regularly it might emerge that you considered odd numbers to be indivisible by even numbers, and that you held steadily to the expectation that a fraction multiplied by a fraction results in a smaller amount than either fraction alone.

On the other hand, if we were to examine and re-examine any part of your viewpoint when you were drunk, we might expect more variation in outlook than a series of such examinations when you were sober. If we were to examine any part of the views of children we might find that (children being more adventurous and experimental) they changed their views more than adults. If you thought that our investigation was designed to test your constancy, then you might give more stable responses than if you thought our investigation was a challenge to see if you could grow, learn and diversify. If we were (say, in chess) to examine your *superordinate* constructs we might find that you clung to strong centre theory while *subordinately* changing merrily from a period when you favoured King's court gambits to one in which you favoured Queen's court gambits, and so on ad infinitum.

The idea of a static mind is a contradiction in terms. We should look to the grid not to repeat the same result but to see, when it shows change, what that

change is signifying. In short, reliability is perhaps best regarded as merely one aspect of validity.

Apart from the general debate about the meaningfulness of particular concepts of reliability, there are specific problems where the grid is concerned, simply because there is no such thing as *the grid*. Given the multiplicity of form, content and analysis for extant grids (and envisaging the many different types of grid which have not yet been invented), it is clearly nonsense to talk of *the* reliability of *the* grid. It is even less sensible than, say, talking of *the* reliability of *the* questionnaire. We would be bound to ask of any question about *the* reliability of questionnaires, *what* questionnaires in *what* area administered to *what* kind of people under *what* kind of conditions and analyzed in *what* kind of manner?

In view of the many reliability studies that have been conducted since the first edition of this *Manual* (Fransella & Bannister, 1977) was published, we are taking as our starting point part of the conclusion to that edition:

> Clearly it would be possible to cite almost an infinity of further reliability coefficients for different grid measures. One study alone (Sperlinger, 1976) yielded, over a seven-month test–retest, a variety of stability coefficients. The degree of perceived similarity between self and the eleven other figures in the grid correlated 0.95. The percentage variance accounted for by the first factor was not significantly correlated test to retest. The two sets of elicited constructs, in terms of percentage of each type of construct on a modification of Landfield's (1971) categorisation system, were 58 per cent in agreement. Again, wide individual variance was reported for all types of reliability coefficient.
>
> Our vision of the possible number of reliability coefficients increases enormously when we reflect that the varying conditions briefly discussed here are additive. Thus not only are there many different measures to be derived from the grid, but each measure can almost invariably be derived from grids which themselves have varying elements and constructs and which might be applied not only to varying individuals but to varying populations of individuals with varying modes of administration and with varying validational fortunes.
>
> (Fransella & Bannister, 1977, p.90)

Much of the research reported in this book bears out these conclusions. We do not intend to discuss all of the individual studies relating to reliability in great detail, but rather we aim to provide information on what has been found, and cite the references for those who would like to study the matter in more depth.

## The Reliability of Different Measures Within the Grid

The grid is a data form that is open to many kinds of measurement, as was shown in Chapter 5. We shall consider nine types of measure which at one time or another have been derived from grid data, and compare and contrast the test–retest reliability for each measure.

### *1. Maldistribution, Lopsidedness, Asymmetry*

Whatever it is called, this is a measure of what Kelly referred to as lopsidedness in constructs, and it has already been discussed at some length in Chapters 3 and 5. If you are asked to divide 20 of your acquaintances into those whom you consider *radical* and those whom you consider *conservative*, then one characteristic of your judgement which immediately becomes apparent is the relative number of elements allotted to each pole of the construct. Your world apparently may be largely inhabited by *radical* characters or by *conservative* ones, or the distribution may be approximately equal. Bannister (1959) reported a study in which people allotted 19 of their acquaintances to the two poles of 22 constructs and then immediately afterwards allotted a different set of 19 acquaintances to the two poles of the same constructs. The proportion allotted to each pole of the constructs was examined from the first to the second set of elements, and the reliability coefficient was 0.70. A repeat (Bannister, 1962a) using 20 photographs as elements with 30 people gave a reliability coefficient for the maldistribution score of 0.76, thus suggesting that lopsidedness can be predicted in these circumstances.

However, our primary question should be to ascertain under what conditions and with what implications the degree of lopsidedness that is shown by a person changes, rather than focusing on whether the measure as such is 'reliable'. In 1979, Adams-Webber pointed out that little was being learned about the phenomenon of lopsideness or 'maldistribution', because it was believed that it was something that had to be controlled for or 'simply ignored in the hope that its effects would be more or less random' (Adams-Webber, 1979, p.156). He cites Bonarius (1965, pp.10–13) as believing that Kelly assumed there was an equal chance of a person putting a tick on one pole of a construct or the other.

The work of Adams-Webber and his colleagues on what is now termed the *Golden Section hypothesis* has provided clear indirect evidence of the stability of that measure and, in turn, of maldistribution. For instance, Benjafield and Adams-Webber (1976) reported that there was little variation of the 62% positive to 38% negative construct poles selected in five independent experiments. Lewicka, Czapinski and Peeters (1992) and others have shown that the Golden Section hypothesis seems to apply particularly when the constructs apply to the 'self'. Adams-Webber (1992) found that whenever a person sees him- or herself as being described by the negative pole of constructs, they also apply those negative poles to half of their acquaintances.

There is now ample evidence that this is a relatively stable phenomenon *provided* that we state the circumstances in which the data are being collected. However, there is at least one occasion when things are not quite as predicted. Adams-Webber (1997b) found that rating one construct on all elements in turn produced results predicted by the Golden Section hypothesis, whereas rating

one element on all constructs in turn produced more positive ratings than would be predicted by the hypothesis. Adams-Webber speculated that this might be due to the tendency of individuals to 'construct integrated impressions' (Adams-Webber, 1997b, p.392) in this situation rather than maximize the differentiation among elements with respect to a given construct.

### 2. *Intensity*

Intensity is a global measure created by Bannister that describes the amount of correlation or relationship between constructs in a grid, so that a high intensity score indicates that most of the constructs are seen as implying each other and are not used independently (*see* Chapter 5 for further details). A correlation of 0.35 was reported by Honess (1978) for intensity in a rank-order grid with children of average age 12.8 years and a test–retest interval of 4 weeks. In the same study, Honess reported a much higher test–retest correlation for a measure of intensity in a modified implications grid ($r = 0.62$). A point to note here is that intensity scores tend much more often than not to increase when a person completes a second grid a short time after the first one, which suggests that some sort of process is inherent in the actual completion of the grid (Bannister, Fransella & Agnew, 1971). A similar point has also been made by Neimeyer (1988).

Many of the studies that have been conducted on reliability have looked at a number of measures, including intensity. For instance, Feixas *et al*. (1992) studied the reliability of nine measures. Unlike Honess, these authors reported extremely high test–retest correlations over 1 hour, 1 week and 1 month of 0.95, 0.95 and 0.94, respectively. One reason for the differences between this study and previous earlier ones is that the grids used were different. For instance, the early studies used rankings or other forms of grid, whereas the study by Feixas and colleagues used ratings grids. At the present time there is no evidence to show that using rankings produces different outcomes to using ratings in grids. Lohaus (1986) found that allowing people to choose the length of scale on which they were to rate the elements produced a higher test–retest reliability compared with that for people whose scales were predetermined for them. Once again, one cannot talk of *the* reliability of *the* grid.

In the first edition of this *Manual* (Fransella & Bannister, 1977), it was said that 'Intensity correlates very highly with other global measures of structure, such as the amount of variance accounted for by the first factor when the grid is factor analysed' (p. 84). However, the study by Feixas *et al* (1992) found a correlation of only 0.25 between intensity and first factor variance, although we examine this in more detail later (see pages 138–139) and suggest this may be due to an artifact. Again these results show a significant increase in intensity with repeated administration of the grids (*see also* the results of Smith (2000) in Table 6.1, on page 139).

Emerson (1982) was interested in the stability of the theoretical constructs of 'constellatoriness' and 'propositionality'. Constellatory (high-intensity) constructs were defined as the five constructs with the highest loadings on the first component in the principal-components analysis of INGRID 72. Propositional (low-intensity) constructs were defined as the five constructs with the greatest residuals after the extraction of the first three components. Over a 7-month period, there was significantly greater consistency of rating for the 'self' and 'ideal self' elements on high-intensity constructs and also on the constellatory constructs.

In a number of studies that will be discussed later in this chapter, it can be shown that intensity increases or decreases under specifiable conditions, and that the degree of intensity is significantly different for groups of people variously identified in terms of their psychopathology (e.g. Bannister, 1962a). Here, therefore, we have a measure of relatively proven validity (in that it predictably relates to characteristics of the people and situation) but of variable reliability. This might lead us to speculate that it is not the measure that sometimes has unwelcome 'error variance', but that it perhaps very sensitively reflects rapid changes in the structure of construing, and should be used with this in mind. Its lack of 'reliability' might denote its most significant theoretical implication. Indeed, Bannister used it as a measure in his research on schizophrenic thought disorder (discussed later in this chapter).

### *3. Saturation*

A saturation measure was used by Fransella (1972), based on the number of implications in any one bipolar implications grid in relation to the number possible in a grid of that size (*see* Chapter 5). This proved to be an important measure, since the score on the first grid to do with how the person saw himself or herself as 'a stutterer' was found to be predictive of whether that person would be likely to improve during the therapy programme. It is therefore worth noting that Honess (1978) reported a test–retest saturation score of 0.79 with young people using his modified implications grid.

### *4. Pattern of Construct Relationships: Construct Consistency*

Basic analysis of grid data tends to yield a matrix of measures of interrelationship between constructs, although the form in which the relationship is expressed may be matching scores or correlations or other forms of relationship index. Obviously the similarity of one pattern of construct relationships to another can be measured in a number of different ways. Perhaps the simplest is what used to be called an index of factorial similarity. This is calculated by rank-ordering the relationship scores (correlation squared $\times 100$) of each matrix from the highest positive through zero down to the highest negative and then running a Spearman rho correlation between

the two. This measure has been utilized in a large number of studies of repeat grids in which either the same or different elements with the same constructs were used. Studies tend to yield coefficients of reliability which fall largely within the range of 0.60 to 0.80. One of the first studies of this kind was by Caine and Smail (1969), who examined the stability of a form of the repertory grid against a measure of a known, relatively stable aspect of personality (the hysteroid/obsessoid dimension). Although it was less stable than the validating criterion, the grid showed significant reliability.

Lansdown (1975) found that there was a decrease in correlation from immediate retest to a retest interval of more than 8 days for 59 children aged 9 to 11 years. The correlation between construct pattern consistency and time interval was $-0.35$ ($P < 0.01$). Gunn, Watson and Gristwood (1976) used rank order grids in their study of 32 prisoners who repeated the grids over intervals of 7 to 10 days. Slater's measure of the overall similarity of element placement between pairs of grids averaged 0.74, with a range of 0.30 to 1.00 for individual people (Slater, 1972).

In his study, Emerson (1982) found greater construct consistency for high-intensity constructs and constellatory constructs.

There have been many other studies on the reliability of this measure, which have obtained varying results. A primary question then is under what conditions we would expect to have more stable patterns of interrelationship between constructs and under what conditions we would expect less stable patterns. Equally, we need to ask for what particular constructs or what subsystems of constructs within the subject's total system we would expect to have high stability and low stability, respectively.

Smith (2000) looked at the test–retest reliabilities of a number of measures, including Bannister's consistency and intensity scores and the percentage of variance accounted for in a principal-components analysis. Her aim was to look at the stability of measures over periods of more than 1 month for experienced teachers who rated the children in their classes. They completed the same grid three times with an interval of 6 months between each testing. Smith's correlations are quite impressive, as can be seen in Table 6.1.

She suggests that one reason for her relatively high test–retest correlations was that her sample consisted of experienced teachers who used children in their classes as elements. However, the children (elements) at the 12-month retest were different from those for the first two occasions of grid completion. There were also very high correlations of both the intensity and consistency measures (ranging from 0.89 to 0.95) with the percentage of variance accounted for on the first factor (of the principal-components analysis). Epting *et al*. (1992) also found high correlations between these measures. However, Feixas *et al.* (1992) found a low correlation between intensity and percentage of variance accounted for. Smith (2000) suggests that the studies should be replicated to investigate this discrepancy. However, there is one possible explanation. The percentage variance that Feixas *et al.* used was from

**Table 6.1** Test–retest reliabilities for some repertory grid measures and means for consistency. Redrawn from Smith (2000)

| | 6 months ($n = 20$) | | 12 months ($n = 17$) | | 12 months (new constructs) | |
|---|---|---|---|---|---|---|
| Intensity | 0.85 | | 0.87 | | 0.81 | |
| Percentage of variance accounted for | 0.82 | | 0.73* | | 0.70* | |
| | Mean | SD | Mean | SD | Mean | SD |
| Consistency | 0.84 | 0.12 | 0.77 | 0.14 | N/A | N/A |

*$P < 0.005$; all other correlations $P < 0.0005$.
N/A, not applicable.

the raw data analysis in GPACK, which is an INGRID type of analysis which takes into account the elements as well as the constructs, and is therefore not comparable with the more usual measure used by Smith.

In a different context, two studies (both conducted in 1978) looked at the reliabilities of intensity scores in rank-order repertory grids and implications grids. In a study of children and adolescents of average age 12.8 years, Honess (1978) reported test–retest correlations over a 4-week period of 0.66 for the repertory grid and 0.82 for the implications grid. Kelsall and Strongman (1978) conducted another of the few studies of reliability of the implications grid. They used emotional experiences for their grid, so it cannot be said to be necessarily similar to that reported by Hinkle (1965). However, they reported test–retest correlations of 0.59, 0.81 and 0.83, respectively in three different experiments.

### *5. Specific Relationships Between Constructs*

In any grid study, whether it focuses on the investigation of an individual's construct system in clinical work or is part of a more general experiment, it may be the relationship between specific constructs within the total matrix which is of particular interest – for example, the relationship between self-constructs (*like I am, like I'd like to be*, and so on) and particular value constructs. A very noticeable feature of grid results is the difference in the reliability (consistency of matrix relationship position on retest) of the same pair of constructs for the same person. This can apply whether the same or different elements are used, as is demonstrated in Table 6.2 (Fransella & Adams, 1966). This shows correlations of the construct *like me in character* with other constructs in four rank-order grids completed by an arsonist on four separate occasions over a period of 1 month. The elements were people known personally to the person on occasions 1 and 4, and photographs of men unknown to the person on occasions 2 and 3.

The main features here are the correlations between *like me* and *pleasure in being sexually aroused*. The psychiatrist (BA) postulated that arsonists derive

**Table 6.2** Correlations between 'like me' and six other constructs for one person on four occasions using people or photographs of people as elements. Reproduced from Fransella & Adams (1966) by permission of The British Psychological Society

| | | | | |
|---|---|---|---|---|
| Like I'd like to be | +0.88 | +0.92 | +0.93 | +0.84 |
| Enjoy power | – | +0.78 | +0.89 | +0.87 |
| Upright | +0.88 | – | +0.94 | +1.00 |
| Feelings about fire | +0.87 | +0.88 | +0.93 | +0.89 |
| Pleasure in being sexually aroused | +0.05 | −0.77 | −0.39 | −0.39 |
| Likely to commit arson | −0.59 | −0.75 | – | −0.90 |

sexual pleasure from lighting fires. The first correlation (0.05) suggested that this man did not understand what this hypothesis was about. Over a month of psychotherapy, he got the idea, but forcibly rejected it (−0.75). After that, one could say that he still rejected it but did not consider it important. This is an example of predicting where change is likely to occur – except that in this case, the prediction got the direction of change wrong.

Feixas *et al.* (1992) looked at the stability of the self–ideal discrepancy and the self–other discrepancy. The reliabilities for these measures over the three time intervals ranged from 0.78 to 0.94 ($P < 0.001$ for all). More recently, Caputi and Keynes (2001) again found considerable stability over a 3-week period of the self–ideal element relationships, ranging from 0.61 to 0.81. However, of particular interest here is the fact that they found a difference in reliability depending on whether constructs were elicited by the triadic or dyadic methods, with higher reliabilities for the dyadic elicitation method. The test–retest reliabilities of extremity ratings were themselves extreme, ranging from 0.84 to 0.92, with the higher correlations this time being for the triadic method. Why these differences should exist is not yet clear.

In a different context, Dempsey and Neimeyer (1995) looked at the stability of relationships between constructs on Hinkle's implications grid (1965). They conducted two studies. In the 'single self' grid, people were asked whether changing from the preferred pole to the other pole on Construct A would lead them to 'definitely know' that or 'definitely wonder' whether they would change on Construct B. In the 'multiple self' grid, people completed six implications grids each with the self in a different context. These were all repeated over a 1-week interval. Consistency between the test and retests ranged from 61% to 59% for the single and multiple self methods, respectively. There was also a significant relationship between the number of reciprocal implications for both types of grid.

### *6. Stability of Elicited Constructs*

A basic question to be asked in relation to grid method is whether constructs elicited from people are likely to be a representative and stable sample, or whether in fact there is an almost infinite pool from which (more or less

randomly) constructs appear from one occasion of inquiry to another. This issue was investigated as early as 1951 by Hunt, who elicited constructs to fit 41 role titles by the triadic method. He found that over an interval of 1 week about 70% of the constructs elicited on the first occasion were repeated on the second occasion. Fjeld and Landfield (1961) repeated Hunt's experiment in a more elaborate form and showed that, given the same elements, over a 2-week interval there was a correlation of 0.80 between the first and second sets of elicited constructs.

### *7. Stability of Elements*

A similar question could be asked about the elements that a person supplies for a grid. Pedersen (1958) found that when his people were twice asked to fit role titles for a grid, with an interval of 1 week, there was a 77% reproduction of the same elements. Fjeld and Landfield (1961) also checked on this feature and found an average 72% agreement for elements supplied to fit a role title list. As has already been mentioned in Chapter 2, Mitsos (1958) found that, after a 3-month interval, people who used role titles produced significantly more identical constructs on retest than did the group that used friends. Mitsos suggested that role titles are likely to elicit the *same* people to fit them on a second occasion, whereas friends can change. To check this, Mitsos repeated the procedure with the 'friends' group after another 3 months (6 months after the original testing), using the elements of the second occasion. The same level of construct repetition was found. We perhaps have an example here of a low level of reliability having a definite reason – friends change. It is nothing to do with the reliability of *the grid*.

If we accept that different subsystems within a person's construing system may have different degrees of stability as well as showing simple changes over time, then clearly we would expect to find, for both individuals and groups, that different elements (which represent different subsystems of constructs) will yield different retest correlation coefficients. Bannister and Mair (1968) asked people to rank-order photographs on supplied constructs and, over an interval of 6 weeks, a correlation coefficient of 0.86 was found, and a correlation coefficient of 0.73 if the actual photographs were changed. The names of real objects that were rank-ordered on appropriate constructs over a period of 6 weeks yielded considerably higher reliability coefficients of 0.92 over time and 0.91 with different objects supplied on the second testing occasion. Even allowing for some lowering of reliabilities if the elements are changed between testing and retesting, these correlations still remain quite high.

Even a multiplicity of statements about relative reliabilities for different types of element would not cover the case, since there is evidence that the formal structure of the grid has to be taken into account. As mentioned above (Bannister & Mair, 1968), when people were asked to rank-order 10 photographs on six constructs their mean reliability coefficient over 6 weeks

was 0.86, whereas when they were asked to rank-order 15 people the mean reliability coefficient over 6 weeks was 0.56. Again, it cannot simply be stated that a higher number of elements in a rank-order grid tends to reduce reliability, as very high reliabilities (0.92) were achieved with a 15-element rank-order grid with objects as elements. As was discussed in Chapters 2 and 3, we now have evidence that the wording of elements influences the outcome; so does the length of scale; so does whether the grid is administered so that all elements are rated on one construct at a time or so that one element is rated on all constructs at a time, to mention but a few.

### *8. Population Variance*

A common finding with grids is that different individuals will show widely varying degrees of stability when they are given repeat grids. In addition, it has been established (e.g. Bannister, 1960; Bannister & Fransella, 1966) that clinically different populations may have very different reliabilities. This second point is of particular interest because it shows the way in which reliability can itself be used as a measure of *populations* rather than as an assessment of 'the test'. In a long series of studies, Bannister and colleagues gave grids on an immediate test–retest basis to populations of thought-disordered schizophrenics and to 'normal' and other psychiatric populations. The stability of the pattern of relationships between constructs on the first and second grid (*consistency*) was itself used to measure a characteristic of each person. However, it can also serve as a test–retest reliability coefficient for the particular grid in use. As has subsequently been repeatedly found, 'normal' and psychiatric populations in general have consistency scores of between 0.60 and 0.80, whereas thought-disordered populations have consistency scores of the order of 0.20.

### *9. The Effect of Varying Validational Fortunes*

One factor that influences reliability has not been mentioned, and that is the construing process itself. Bannister (1965a) asked people to rank-order photographs on 'personality' constructs for a total of 20 trials. In each case the pattern of interrelationships between constructs was correlated with the pattern of interrelationships for the following trial. One group had been validated (i.e. told that their judgements were largely accurate throughout all trials). This group had a grand mean reliability coefficient (from a total of 19 comparisons for each of the 10 people in the group) of 0.74. For an invalidated group (who had been told that their judgements were largely inaccurate after each trial) the grand mean was 0.56. Clearly, it would be nonsense here to talk about these different reliability coefficients as indicating different reliabilities of *the test.* What they show is that reliability (or 'consistency', since we wish to indicate that we are talking about a psychological characteristic of people and

not a characteristic of the test) is a function of the psychological processes of individuals, and perhaps in particular varies with their conviction that they are doing well or badly in the task that they are undertaking.

## CONCLUSIONS

Our vision of the possible number of reliability coefficients increases enormously when we reflect that the varying conditions briefly discussed here are additive. Thus not only are there many different measures to be derived from the grid, but also each measure can almost invariably be derived from grids which themselves have varying elements and constructs and which might be applied not only to different individuals but to different populations of individuals with different modes of administration and different validational fortunes. It may therefore be sensible to regard 'reliability' as the name for an area of inquiry into the way in which people maintain or alter their construing, and to estimate the value of a grid not in terms of whether it has 'high' or 'low' reliability, but in terms of whether or not it is an instrument which enables us to investigate precisely this problem.

As is now obvious, there can be as many studies of the reliability of repertory grids as there are different elements, construct elicitation procedures, administration procedures, samples and much else besides. The approach to reliability stemming from personal construct theory is very much along the lines proposed by Cronbach *et al*. (1972). Those authors moved away from the notion of a monolithic concept of reliability towards the idea of there being a series of generalizability coefficients appropriate for different measures, contexts, occasions, groups, and so on. As we have seen, the situation with grids and grid measures seems to be very like this.

It is incumbent on those conducting research to ensure the reliability of their own specifically designed repertory grid and the particular measures that they wish to use whenever this is considered important. For those using grids in a practitioner context, where there is more concern about how the client construes rather than about specific accuracy, reliabilities can be seen as indicators of degree of change. In either context, we should perhaps bear in mind Mair's idea that we should be predicting what changes we expect to occur and what we expect to remain stable (Mair, 1964).

## VALIDITY

> . . . if we substitute for validity the notion of usefulness, or at least make usefulness the central feature of validity, we shall be less concerned with the correlation between a test and some relatively arbitrary criterion, and more concerned with the values which users of a test find in it.
>
> (Bannister & Bott, 1973, p.162)

## The Meaning of the Term

It is reasonable to talk about the validity of the grid only in the way that it is reasonable to talk about the validity of, say, the Chi-square measure described in Chapter 1. We readily recognize that the Chi-square, like any other measure, is a format in which data can be placed, which will reveal if there is a pattern or meaning to the data. This is exactly what a grid is. It is not a test. It has no specific content and its validity can only be talked about in the sense that we can question whether or not it will effectively reveal patterns and relationships in certain types of data.

This means that we have to talk about the validity of the grid in a very different way from that in which we talk about the validity of, say, a questionnaire. If we have a 30-item questionnaire which is alleged to measure a person's 'submissiveness', then we are necessarily involved in the meaning that we attach to the term 'submissiveness' and the question of what, in turn, we would expect 'submissiveness' to relate to and predict. Grids do not measure a trait or characteristic in this sense. Basically they are ways of looking at the relationships between a person's constructs. We can argue about whether 'submissiveness' or any other type of named characteristic is conceptually useful in psychology, but it is difficult to set up the argument that people's constructs do not relate, or that it is unimportant whether or not they relate.

The fact that we attach meaning to the world around us is itself a way of stating that our constructs relate. A dictionary is simply a catalogue of how constructs represented by linguistic symbols relate formally for a particular population. The whole structure of logic (both formal and informal) is based on the notion of one construct *implying* another (if $p$ then $q$). Therefore the basic contention that constructs relate is not disputable, since the very act of disputing it would involve organized argument which can only be contrived if constructs relate. Nor is it reasonable to argue that grids do not measure relationships between constructs, although we can argue about the ways in which they measure such relationships and the types of prediction we can derive from such measurements.

If we take any common form of grid – for example, a grid in which 10 elements of any kind have been rated on a number of constructs – then we shall find that there is a series of significant correlations between those constructs, many more than would have been expected by chance. Clearly the grid has revealed a pattern of relationships between the constructs by revealing a pattern in the way in which the person has ranked or rated his or her elements. Thus it can be argued that the grid has, in one sense of the term, intrinsic validity. For any given grid, the meaningfulness of the operations performed by the person can be demonstrated (Draffan, 1973). This is because the types of statistic, such as the significance level of correlations, binomial expansion, cluster analysis, principal-components analysis and so on, which

we normally apply to data resulting from a population of people, can be applied to the performance of one person in a single grid. The 'population' is the population of the person's responses, and it can be explored by many of the group statistics which have traditionally been used primarily for groups of people. Therefore, our first contention is that the grid is essentially a format for data, and that while it is eminently reasonable to question the validity of a *particular* grid format constructed to try to yield *particular* information, it is not sensible to dispute the validity *of the grid* as such.

The second aspect of grid validity of particular note concerns the relationship to reliability – that is, that the grid has an infinity of forms and therefore cannot be talked about as an entity in the sense that we normally talk about particular psychological tests as entities. If we found that a particular form of grid had no predictive value and was not yielding information, we would look for flaws in that format rather than making any general statement about validity or non-validity of *the grid.* Examples are ready to hand. Almost certainly if we provide a person with elements with which he or she is entirely unfamiliar, we may find that, on analysis, we are faced with a grid in which there is very little in the way of relationship between constructs. However, even this is in a sense a valid picture. What the grid is telling us here is that the person has no constructs with which they can make sense of these particular elements. In construct theory terms, they are outside the range of convenience of the person's construct system, and the grid has very properly produced a random picture.

If we provide people with verbal labels which are relatively unfamiliar to them, they may arbitrarily attach meanings to these verbal labels and produce a pattern of relationships which misleads us. Alternatively, they may react by sorting the elements in a random manner, thus reflecting their bewilderment at this strange array of verbal labels. Either way we shall be deprived of really useful information and left with perhaps no more than the fact that these verbal labels are truly unfamiliar to those construing them.

If we were to try laddering a person from their subordinate constructions to more superordinate constructions, and our questioning was badly formulated and we failed to notice the comments of the person, he or she might ladder 'downwards', giving more subordinate constructions rather than superordinate constructions. This would be misleading in terms of any predictions we wished to base on the presumption that we had correctly ascertained something of this construct hierarchy. Such problems in laddering were discussed in Chapter 2.

Just as there are vast numbers of ways of constructing grids, so there are vast numbers of ways of constructing grids badly. Each grid form is essentially an experiment within itself involving us in all of the problems we would normally expect to encounter when designing an experiment. Thus the decision to administer a grid to one person or a group of people involves many questions. For example, what kind of elements do we provide or elicit? What

kind of construct labels do we provide or elicit, or do we mix provided and elicited ones? What kind of format do we ask the person to work in (rank order, rating, dichotomous allotment)? What overall format do we use (a multi-celled grid, implication grid, laddering, etc.)? What aspects of structure or content in the construing system are we investigating (lopsidedness, degree of structure, relationship between particular constructs such as self and ideal, degree of insight of the person into his or her own construing, degree of commonality between the person's construing and some given standard or average, etc.)? We are equally involved in the question of forms of analysis (some form of cluster analysis, direct measurement of matching between particular constructs, overall measures of structure, measures of lopsidedness, and so on).

Research into most of these questions has been conducted and is reported in previous chapters, but definitive answers have not always been found.

The grid seems to have become a problem and a burden for some people, because they have regarded it as a ready-made device for their purposes, rather than a broad methodology which involves them in solving a series of experimental problems if it is to be of any value.

An early paper by Donald Fiske (1973) entitled 'Can a personality construct be validated empirically?' is of interest here. His basic answer to the question is 'no'. Looking at nomothetic tests, he says that the personality construct, such as those involved in Murray's needs, must be so defined that its meaning is structurally linked to the measuring instrument. Of particular interest here is his final summing up:

> How a given test relates to its construct and the hypothesized correlates of that construct can be determined post hoc but not predicted from a priori inspection. More reasonable is the possibility of developing new conceptualizations and new measuring operations concurrently, more or less as Kelly (1955) did for his Role Construct Repertory Test.
>
> (Fiske, 1973, p.92)

Bearing in mind all of the provisos outlined above, some studies of the validity of grids and their measures will now be considered.

## Validation in Terms of Theory

Since repertory grid technique is intimately bound up with personal construct theory, it is important to investigate the validity of the technique in terms of how effectively it can operationally define terms within the theory and provide a means of testing hypotheses derived from the theory. So far, psychologists have rarely used the grid for such purposes, but an early and classic study well exemplifies this form of investigation. Levy (1956) was concerned with the difference between propositional and constellatory constructs in terms of Kelly's theory. A constellatory construct is one which 'defines the other realm membership of its elements'. That is to say, it takes a form somewhat like a stereotype in asserting that, for example, if we construe

someone as *female* then they must necessarily be *sensitive, over-emotional, timid, unpunctual, impractical* and *fond of flowers*. A propositional construct, on the other hand, does not imply a series of inevitably related constructs. It takes an essentially 'as if' form, so that we may construe any *she* as if she were, among many other things that she might also be, a *female*. Levy argued that because a constellatory construct implies many other constructs, a great deal of consequential reconstruction will be required when it is invalidated. The invalidation of a propositional construct will involve relatively little reconstruction. Levy then used a form of grid to distinguish between the two types of construct, assuming that constructs which were grouped in clusters and were highly interrelated could be dubbed constellatory, whereas constructs which had few linkages with others (which were residual in factor-analytical terms) could be assumed to be propositional. He examined the degree to which his people changed their views using these two types of constructs, and found that there was indeed an inverse relationship between the range of interdependency of a construct and its susceptibility to change following predictive failure.

Bannister (1963, 1965a) turned his attention to the question of what psychological processes underlie the thought disorder which is found in some people diagnosed as schizophrenic, and tested his serial invalidation hypothesis. He argued from personal construct theory that variation in the structure and content of construct systems is a function of varying validational fortunes. Any construct, because of its position in a system, is intrinsically a prediction – if our constructs of *kinsfolk* and *trustworthiness* are linked, then we expect our cousin to pay us back the money he owes us. Bannister argued that the thought-disordered person has so frequently experienced invalidation (events contrary to the expectations generated by his construct system – too many cousins had not repaid the money they owed him) that he eventually loosened the linkages between his constructs so that no very specific expectations were generated. Invalidation was thus avoided at the cost of living subjectively in a fluid and largely meaningless universe.

This hypothesis was tested in the form of a laboratory game in which 'normal' people made repeated psychological judgements from photographs of faces and experienced either repeated invalidation or validation or 'no information'. In summary, the results indicated that if a person is faced with repeated invalidation of part of his construct subsystem for viewing people, he first of all alters the pattern of relationships between his constructs (in effect, he repeatedly alters his psychological theory), but eventually he begins to loosen the relationship between his constructs (in effect, he begins to go out of the theory-holding business). Conversely, repeated validation (confirmation of expectations) leads to an intensification of the linkages between constructs until the system becomes simple and monolithic.

One important way of assessing the validity of particular methodologies of psychological investigation is to consider the degree to which they can sustain

an extensive and sequential line of research. Repertory grid technique has been used in two areas which themselves have been subjected to extensive study. The first is the area of 'cognitive complexity' (*see* Chapter 5), and the second area is research on the issue of 'thought disorder', some of which is mentioned above. Bannister (1960, 1962a), Bannister and Fransella (1966) and Bannister, Fransella and Agnew (1971) reported studies in which thought-disordered schizophrenics were discriminated from 'normals' and other psychiatric groups by the grid method. The grids of thought-disordered people were characterized by low correlations between constructs and low consistency of the pattern of relationships between constructs when grid measures were repeated. Thought disorder was thereby defined as grossly loosened construing (a loose construct being one which leads to varying predictions).

The *simultaneous* lowering of both intensity and consistency was seen as inevitable. If you are certain today that *decency* is essentially *British* (high intensity, tight construing), then you may well be certain of this tomorrow (high consistency), but if you become vague as to whether *decency* is related at all to *British* (low intensity, loose construing), then tomorrow you may toy with the notion that *decency* may relate to *foreign* (low consistency, loose construing). Other studies which elaborated these findings have been reported by, for example, Foulds *et al*. (1967), Presley (1969), McPherson *et al*. (1973), Spelman, Harrison and Mellsop (1971), McFadyen and Foulds (1972), and Kear-Colwell (1973). Studies that have been adversely critical of this line of argument include those by Williams (1971), Frith and Lillie (1972), and Haynes and Phillips (1973).

Studies by Bannister and Salmon (1966b) and Salmon, Bramley and Presley (1967) indicate that it is people, rather than the physical world, who puzzle the thought-disordered person. Damage is focal to the area of psychological construing. This finding suggests that the origins of thought disorder may be interpersonal, and it relates to the arguments of such workers as Laing and Esterson (1964), Lidz (1964) and Bateson *et al*. (1956). Indeed, 'mystification', 'the inculcation of confused and distorted meanings' and 'double binding', can be viewed as particular interpersonal strategies which all produce the general effect of serial invalidation, illustrated experimentally in the studies by Bannister (1963, 1965a) that have already been cited.

In the last study in this series, by Bannister *et al*. (1975), an attempt was made to reverse the process of thought disorder by serially validating the construing of a selected number of severely thought-disordered patients. In this study, the grid was used not only as a way of estimating the degree of thought disorder, but also as a technique for locating surviving areas of structure within the generally disordered interpersonal construing of the patients.

The various issues arising within this long-term research continued to receive attention. For example, Heather (1976) has investigated the question of whether thought disorder is specific and focal to the construing of people in

'psychological' terms or whether it is more diffuse. McPherson, Armstrong and Heather (1975) considered the problem of 'difficulty level' in construing, both as a general problem of definition and as a problem in the interpretation of grid analyses.

If we accept that theory-making is the primary strategy of science, then we can argue that the usefulness of the grid method should ultimately be assessed in terms of its contribution to the elaboration of theory.

## Validity and Theoretical Constructs

In 1981, Leitner reported his research on the construct validity of two measures derived from personal construct theory, namely literalism and chaotic fragmentalism. Chaotic fragmentalism in particular was found to be significantly related to personality variables such as those associated with confusion and disorganization. Literalism was also related to some personality variables, particularly a style of rigid, anxious defensiveness.

Again using a measure that stemmed from personal construct theory, Kline, Pelias and Delia (1991) tested the predictive validity of cognitive complexity in relation to communicative performance. These authors used the repertory grid task of Bieri *et al*. (1966) followed by Crockett's (1965) Role Category Questionnaire as measures of cognitive complexity. As for communicative performance, people first completed a social perspective-taking task (Pelias, 1984) in which they were asked to imagine two interpersonal conflict situations – one of which was two friends of theirs having an argument. They were then asked to write down what each character thought, what each character thought the other thought about the situation, and then what each character thought the other thought the character was thinking about the situation. After this, they had to imagine each of the characters coming to them for counselling, and to write down what advice they would give. The results showed first that the Bieri and Crockett measures did not correlate significantly. The Crockett measure correlated significantly with the social perspective-taking score, but only at 0.27, but it correlated more significantly with the counselling score, at 0.48. Kline and colleagues have pointed out that the presence of a predictive relationship (even though small) does not explain why individuals who are cognitively complex are better at such tasks than non-complex perceivers.

## Linking Construing with Behaviour

One of the three aspects of validity that Mair (1964) considered it important to assess in relation to the repertory grid was whether grid scores predict or relate to other aspects of behaviour.

In an early study, Fransella and Bannister (1967) assessed the concurrent and predictive validity of a repertory grid measure by demonstrating that

voting behaviour was related to construing. A total of 74 people completed grids with five liked and five disliked people known to them as elements, and nine supplied constructs. The constructs included the *self*, *likely to vote Conservative*, *Liberal* or *Labour* and *ideal self*. After completing the grid, subjects were handed a form on which they were asked to underline the political party for which they would probably vote in a British General Election due to take place in 2 weeks' time. They were also asked to underline the degree of certainty of their chosen political party on a 5-point scale, as well as their interest in politics on a 7-point scale. One week after the election they were given another form on which they were asked to say how they actually did vote and what their second choice would have been if no candidate was standing for their preferred political party. The ideal self was the best predictor of voting behaviour. The study included the 'brand image' constructs of that time, with *Conservative* being *proud of being British* and *Labour believing in equality*. The prediction that the political parties would agree about the relationship between them was validated. The correlations between the constructs *likely to vote Labour* and *likely to vote Conservative* were $-0.80$ for Conservatives, $-0.92$ for Labour supporters and $-0.71$ for Liberals.

A central tenet of personal construct theory is that it is a psychology of the whole person. Thinking, feeling, and behaviour do not function separately. Fransella's research with people who stutter was specifically designed to provide evidence to validate the personal construct theory view that behaviour is inseparable from construing (Fransella, 1972). In that research she showed clearly that, as a person who stutters became more fluent, so his or her disfluent speech diminished. Being directly concerned with the treatment of stuttering, this work validates the grid method by linking it to therapeutic methods derived from personal construct theory and demonstrating that this *common conceptual base* provides an adequate ground for effective practice.

Winter (2003b) has described the considerable evidence base on which the validity of personal construct psychotherapy now rests. He makes the important point that many personal construct psychotherapists and counsellors think that conducting empirical research on their methods is incompatible with their underlying constructivist assumptions. He argues that in fact empirical research can lead to new and more effective ways of helping those with psychological problems, as has been described above. From the considerable amount of evidence for the validity of personal construct psychotherapy, Winter concludes that:

(1) psychological disorders are characterized by particular features of construing;
(2) effective psychological therapy is associated with reconstruing;
(3) the process of personal construct psychotherapy is distinctive, and contrasts in practice with that of rationalist cognitive therapy;

(4) personal construct psychotherapy is effective in an individual or group format, with a range of client groups;
(5) the degree of improvement in this form of therapy is similar to that obtained in other therapies.

### Validity and Qualitative vs. Quantitative Methods

Also of interest here is the question of whether the idea of the validity of a measure is the same for qualitative research as it is for quantitative research, or whether they require different approaches. In his chapter entitled 'Issues of validity in qualitative research', Tschudi (1989) argues that they do not require different approaches. Tschudi's argument hinges on the idea that there exists 'a glib, superficial equation of quantitative methods (psychometrics) with positivism' (Tschudi, 1989, p.130). He points out that positivism and 'facts' have not been regarded as viable philosophically for more than 40 years.

## CONCLUSIONS

It is possible to define validity in terms of personal construct theory. The validity of a technique is its capacity to enable us to elaborate our construing. Elaboration, from the point of view of a personal construct theorist, occurs by the extension and definition of our construing system. By elaborating by extension we increase the *range of convenience* of our constructs so that more events or elements are taken into account. We widen the area to which we can apply a particular 'theory', and that 'theory' may, as in the case of repertory grid technique, take the form of a measurement instrument. We elaborate our construing by definition, in that we do not extend the range of convenience of our construing but we do tighten the construing within a given area so that we have a more precise, exact and detailed grasp of it. Whether we elaborate by extension or by definition, or both, it is in terms of its capacity to enable us to anticipate that we measure the validity of our technique.

The term *anticipate* is chosen because it carries implications beyond the more limited notion of prediction. It suggests that we seek to understand in order to involve ourselves with our world and to act upon it. Thus validity ultimately refers to the way in which a mode of understanding enables us to take effective action. The 'us' who takes action may well be the person doing the grid rather than its administrator.

Kelly succinctly states the relationship between measurement, prediction and action as follows:

> Accurate prediction, then, can scarcely be taken as evidence that one has pinned down a fragment of ultimate truth, though this is generally how it is regarded in psychological research. The accuracy confirms only the interim utility of today's

> limited set of constructs. Tomorrow's genius will erect new dimensions, open up unsuspected degrees of freedom, and invite new experimental controls.
>
> And yet, however useful prediction may be in testing the transient utility of one's construction system, the superior test of what he has devised is its capacity to implement imaginative action. It is by his actions that man learns what his capabilities are, and what he achieves is the most tangible psychological measure of his behavior. It is a mistake to always assume that behavior must be the psychologist's dependent variable. For man, it is the independent variable.
>
> (Kelly, 1969e, p.33)

As we said in the first edition of the *Manual*, before examining the validity of particular uses of the grid, we specifically reject one type of estimate of validity. There is a tradition in psychology whereby the validity of a test is arbitrarily equated with its degree of correlation with another test or with its capacity to predict some arbitrarily chosen and relatively trivial aspect of human behaviour. Kelly was very prepared, in terms of a construct theory approach, to equate validity with usefulness and to see understanding as the most useful of enterprises. Chapter 8 seeks to demonstrate the validity of personal construct theory and its measuring instrument in terms of the ways in which people have found it useful to use repertory grid technique.

Chapter 7

# SPECIFIC WAYS OF USING GRIDS

Much of what has been covered in the previous chapters is about the grid itself. The aim of those chapters is to provide grid users with guidance on what type of grid might be appropriate for their specific purposes, what factors may influence the results they will obtain, and what methods of analysis are currently available. In this and the following chapter we are primarily concerned with specific areas in which grids have been found useful to increase our understanding of ourselves and others.

Some believe that grids do not do justice to Kelly's notion that we are all 'forms of motion', and that narrative methods are more valid in this sense. It is sometimes forgotten that Kelly provided a method for doing this – called the *self-characterization*. Perhaps grids, as well as narrative methods, are best viewed as providing snapshots of a person in a particular context at a particular time in their life. Even though Kelly jokingly said that the definition of the 'reliability' of a measure was its insensitivity to change, this does not mean that we are constantly changing – even though we may be forms of motion. The previous chapter gave examples of how repeated grids can show considerable similarity over time. In fact, anyone whose job it is to help others change knows just how difficult that can be for the person concerned.

Therefore we start this chapter by showing how the living person is included in the grid procedure when the results of the analysis are discussed with that individual. We then move on to describe one specific instance in which the ratings grid has been modified to be used as an aid to an individual's decision-making process.

However, grid data are not always idiographic and about the individual person. Some authors have found it useful to develop partially idiographic

and partially nomothetic tools and some wholly nomothetic tools in which one individual's responses are related to the responses derived from many people. Some feel strongly that the production of these so-called *nomothetic* tools is not consistent with a personal construct approach. However, Kelly himself was not against attempting to understand an individual by setting that individual against data derived from many others. Because of this, we shall include what Kelly himself said on the subject.

## THE INDIVIDUAL AND THE GRID

### The Planning Stage

The planning stage of creating a grid is of vital importance. Although the advantage of grids is their flexibility and their applicability to diverse situations, that very flexibility raises problems. In the preceding chapters of this book, many details have been given about how simple differences in grid creation can affect the results that are obtained. However, when the aim is to try to get a glimpse of how another person construes his or her world, some of these differences do not matter too much. This is because we start out with the view that we are not going to get at 'the truth', but we merely hope to gain a privileged misty view of the world as seen by that person. As we stated in Chapter 1, to the extent that a grid gives us a map of an individual's construct system, it is probably about as accurate and informative as the maps of the American coastline which Columbus provided.

However, decisions do have to be made. Will the client find it easier to be asked to think of how two elements are alike and thereby different from the third, or to be asked what is the opposite of the similarity given? For some people it is probably better to use two rather than three elements to elicit the constructs. Will it be better to elicit both elements and constructs, or to supply the elements and elicit the constructs, or to supply both or just some of them? There are no rules to help decide these issues. Although specific training in grid creation is not a requirement, some practice is certainly a good idea.

In general it is most usual for the grid creator to select the elements to be construed. This is done on the basis of what question the grid is supposed to be addressing. In the case of the grid given in Chapter 3 and discussed throughout this book, the question was 'How does this person see herself in relation to her parents and people more generally?'. To ensure a wide coverage of people, role titles were used, including some who would be construed favourably and some who would be viewed unfavourably. The constructs were elicited from triads with the 'opposite' of the two similar elements being asked for. Since this grid was for demonstration purposes only, it is slightly smaller than one would usually use.

For more detailed coverage of the design of individual grids and the problems likely to be encountered, we would refer the reader to Jankowicz (2003).

## Where the Individual Comes Into the Picture

Obviously the person is there when the grid is being administered, but the grid only really comes alive when he or she is shown the results. These are nearly always fed back to the person concerned with such questions as: 'Does this make sense to you?', 'How come this seems to be the opposite of that?', and so on. Before the feedback, however, interpretation of the grid results is vital. In effect, whatever the context in which the grid has been obtained, the results have to be pre-digested. As one would expect from a personal construct psychology perspective, this pre-digestion is undertaken as far as possible from the perspective of the grid owner and not that of the interpreter. Pre-digestion is necessary because one does not want to present something to the recipient which seems likely to cause anxiety, be threatening or in some way represent something that the person may not be able to deal with at that time. The vast majority of people 'believe' what statistics tell them, so the presentation of statistical plots of data is usually taken to be a representation of the truth.

## The Pre-Digestion Stage

With the constructs and elements plotted in a two-dimensional space, one can first try to understand what the two dimensions mean psychologically. One 'takes on' the client's ways of construing the world. What does it feel like to see the world in this way? Theoretically one makes use of the Sociality Corollary and tries to stand in the client's shoes and see the world through that person's eyes. There are a few points to keep in mind when trying to see the world through the eyes of someone's grid. Kelly regarded his grid as a way of 'getting beyond the words'. One important thing to remember is that we are only looking at one sample of a person's construing of the world. What we see is not, and cannot be, a representation of the 'whole person'. As was discussed in Chapter 2, constructs vary according to the context in which they are used and in many other ways as well. What we can get is a glimpse into the world of another person by seeing the numbers and two-dimensional plots as his or her way of communicating with us.

We can start our attempt to step inside the shoes of our client by obtaining an overview of the grid itself. The figures in Table 7.1, which are taken from Chapter 4, show us that all of the construct means are relatively similar, which suggests that no constructs are lopsided (in the sense that one pole is used substantially more than the other). The standard deviations vary somewhat, indicating that the elements differ in the extent to which the ratings are spread

**Table 7.1** Means and standard deviations of the constructs

| Construct | Mean | Standard deviation |
|---|---|---|
| clever–not bright | 3.75 | 2.17 |
| disorganized–organized | 4.00 | 1.66 |
| listens–doesn't hear | 3.50 | 2.00 |
| no clear view–clear view of life | 4.38 | 1.49 |
| understands me–no understanding | 3.50 | 1.73 |
| ambitious–no ambition | 4.50 | 1.41 |
| respected–not respected | 3.25 | 1.64 |
| distant–warm | 4.13 | 1.83 |
| rather aggressive–not aggressive | 3.63 | 1.80 |
| Average of statistic | 3.85 | 1.75 |
| Standard deviation of statistic | 0.40 | 0.22 |

out in terms of the constructs. The construct along which the elements are most widely dispersed is *clever–not bright*, and they are least dispersed on the construct *ambitious–not ambitious*.

Thus our person uses the elements quite differently from each other and has ratings on her constructs that are reasonably spread out, rather than being piled up on one pole of the construct or the other. We now move on to Table 7.2, which lists the correlations between the constructs already shown in Chapter 4.

As was noted in Chapter 4, tables of correlations present the person with a large amount of information, but we do not need to look at it all. In fact, they do not add much to what we can gather from the two-dimensional plots. However, for those who feel at home with correlations, we can see that *clever–not bright* is very highly correlated (0.93) with Construct 7, namely *respected–not respected*. That is, clever people are definitely respected and they are definitely not Construct 2, namely *disorganized* (−0.84). One way of simplifying the

**Table 7.2** Correlations among constructs; correlations referred to are highlighted

| Construct | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 |
|---|---|---|---|---|---|---|---|---|---|
| 1 clever–not bright | 1.00 | −0.84 | 0.92 | −0.63 | 0.80 | 0.24 | 0.93 | −0.02 | 0.07 |
| 2 disorganized–organized | | 1.00 | −0.60 | 0.50 | −0.52 | −0.27 | −0.87 | −0.04 | −0.50 |
| 3 listens–doesn't hear | | | 1.00 | −0.48 | 0.90 | 0.09 | 0.80 | −0.15 | −0.23 |
| 4 no clear view–clear view of life | | | | 1.00 | −0.31 | −0.62 | −0.50 | −0.20 | −0.23 |
| 5 understands me–no understanding | | | | | 1.00 | −0.05 | 0.66 | 0.02 | −0.06 |
| 6 ambitious–no ambition | | | | | | 1.00 | 0.27 | 0.31 | 0.12 |
| 7 respected–not respected | | | | | | | 1.00 | −0.18 | 0.07 |
| 8 distant–warm | | | | | | | | 1.00 | 0.55 |
| 9 rather aggressive–not aggressive | | | | | | | | | 1.00 |

correlation matrix is to analyze it into its principal components as described in Chapter 4. This is the answer to what Kelly called the Minimax problem (Kelly, 1969d).

Table 7.3 shows the 'loadings' of each construct on each of three principal components. These loadings are the extent to which each construct relates to that component. The fact that some of them have negative signs is irrelevant for our purposes of psychological understanding – it is simply the way in which the data have been entered into the computer. We do not necessarily have to spend long looking at the loadings, because it is these that enable the two-dimensional plot in Figure 7.1 to be drawn schematically.

As you can see, vertical and horizontal lines have been drawn on to the figure, which makes it easier to see which elements and constructs define the extremes of each component. These results are from a non-rotated analysis of the data, so are not identical to those in Chapter 4. Rotation of the components is not usually performed on grids designed for individual interpretation. This is because it is difficult to know what the psychological meaning of such rotations is – and, of course, we are getting even further away from the raw data in the grid itself.

The first thing to do is to try to get an idea of the psychological meanings of the components. In this grid, as in most cases, the horizontal Component 1 splits the constructs and elements into what is 'good' and 'bad', and so only tells us whether we can rely on the plot as a reasonable map of the person's construing in that particular grid. We know this by expecting to see the 'ideal self' somewhere on the 'good' pole of the component. Of course, if we know that the person has a particular problem with their identity, for example, then we might expect something else. However, as a general guideline, the position of the 'ideal self' is worth looking at.

The second component is more interesting. In this grid it seems to be concerned with attitudes and feelings, and to polarize the elements 'mother'

**Table 7.3** Loadings on three non-rotated principal components

| | Components | | |
|---|---|---|---|
| Construct | 1 | 2 | 3 |
| clever–not bright | 0.99 | −0.09 | 0.03 |
| disorganized–organized | −0.86 | −0.22 | −0.28 |
| listens–doesn't hear | 0.89 | −0.37 | −0.03 |
| no clear view–clear view of life | −0.68 | −0.41 | 0.42 |
| understands me–no understanding | 0.79 | −0.31 | 0.22 |
| ambitious–not ambitious | 0.33 | 0.58 | −0.68 |
| respected–not respected | 0.93 | 0.12 | 0.02 |
| distant–warm | 0.01 | 0.77 | 0.18 |
| rather aggressive–not aggressive | 0.15 | 0.78 | 0.55 |

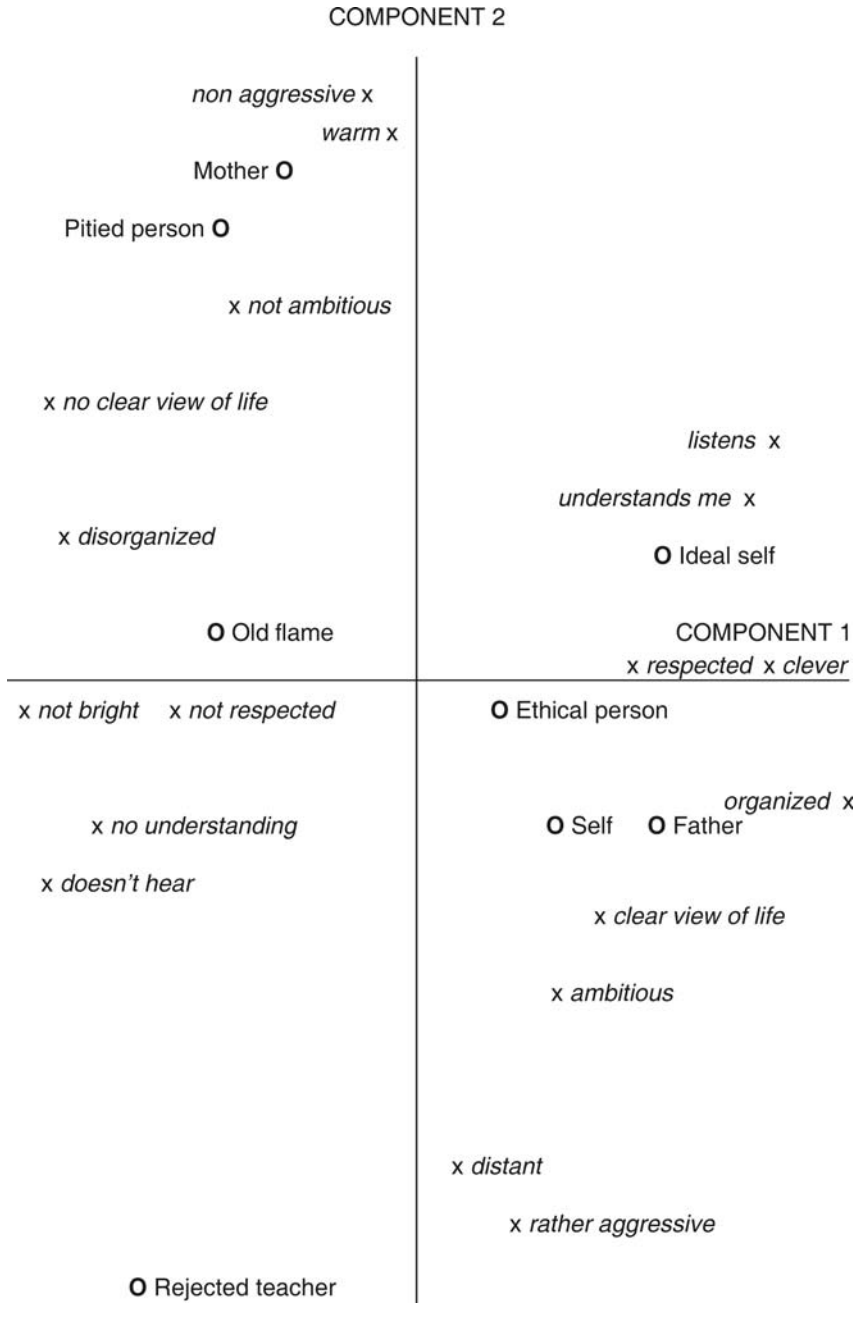


**Figure 7.1** First two components of the principal-components analysis

and 'pitied person', who are both seen as *warm* and neither *aggressive* nor *ambitious*, as opposed to 'rejected teacher', who is seen as *distant* and *rather aggressive*. You may disagree with these interpretations, but here we are not seeking 'truth' but rather approximations to what the person who completed the grid *might* be like. It is usual to interpret those constructs and elements that are close to the point where the two component lines cross as being too vague to be interpreted clearly. In this case only the element 'ethical person' could be said to be rather near the centre. We are looking at those constructs and elements that are clearly at one extreme or the other on the components.

As was discussed in Chapter 4, elements are measured differently from constructs, often in terms of their 'distance' from each other. In this computer analysis, the element 'ideal self' was identified and so it is assumed that the poles of constructs that are rated low on that element are the ones that are construed by the person as 'preferred' poles.

Now we shall look at the 'selves' in order to gain a more detailed 'feel' for what the world looks like from the grid-user's point of view. As we have said, the 'ideal self' is at the 'good' pole of the first component. 'Father' is fairly close to 'self', and he is also seen as being *organized* and *having a clear view of life*.

Still trying to get a general feel for the meaning of this grid, we can note that 'father' is placed fairly high on Component 1 and 'mother' is definitely placed high on Component 2. This adult person still uses her parents as important elements in her construing of the world. Her 'father' is the *clever*, *respected* and *organized* person, while her 'mother' is a *warm* and *non-aggressive* person, but also someone who is 'pitied'. The person herself ('self') is a fair distance away from her 'ideal self'.

Up to this stage we have been able to understand how this woman sees the world defined by these particular elements and constructs. There is perhaps an important point to make here. When one talks about stepping into the shoes of another person to glimpse the world through their eyes, one is always also using one's own construing system to gain that understanding. This does not mean 'making' what one sees conform to one's personal construing – it means saying to oneself 'Yes, I think I can understand that this person sees her parents very differently and has some distance between the way she would like to be and the way she sees herself now. This is not the way I see things, but how I view my world is of no account'. In interpreting the plots of many single grids in this way, one often finds nothing particularly surprising. However, the really exciting aspects of grid interpretation occur when one finds something that makes one say 'Hey, hang on a moment, I don't understand this at all. Perhaps the grid is wrong, or perhaps this is really what Kelly meant about ''getting beyond the words'' '. Every so often, such a surprise is delivered by the third component of a grid. Many grids only have two components, but we are able to extract three from this grid. The third component can be seen plotted against Component 2 of this grid in Figure 7.2.

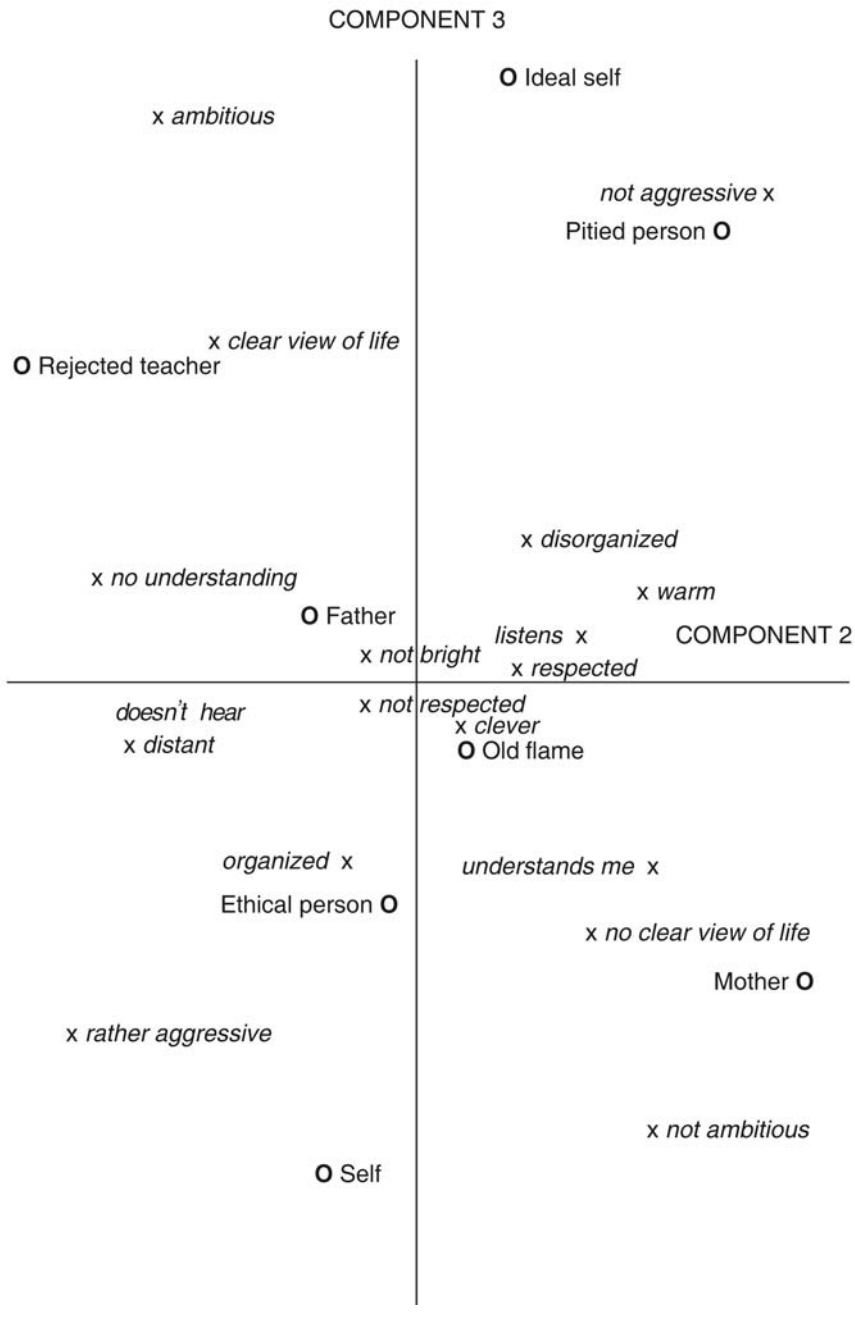


**Figure 7.2** Plot of components 2 and 3

The feature that is immediately striking in Figure 7.2 concerns the positions of 'self' and 'ideal self' on the third component (now the vertical component). What is keeping them apart is the construct *ambitious* vs. *not ambitious*, with the 'ideal self' being the former and the 'self' being the latter. If we look a little further afield, we can see that *rather aggressive* is associated to some extent with the 'self', and *not aggressive* is similarly associated with the 'ideal self'. However, it is the construct concerned with ambition that gives us cause for thought. Ideally, this person would be *ambitious*, but she sees herself as *not ambitious*. Yet being *ambitious* has some undesirable quality, as it is quite a way over on the side with the 'rejected teacher'. This is not something that is easily understood, and clearly it needs to be discussed with the person herself if we want to gain a better understanding of how she construes her world. It is possible that the construing of *ambition* is tied up with being *not aggressive*, yet the latter is related to the 'pitied person'. If this were to be considered anything approaching the way in which this woman sees the world, then she would appear to have a major conflict within herself that presumably affects her life. However, only she can say whether this is so.

## Feeding the Results Back to the Client

There are many ways of feeding back the results of grid data to clients, just as there are many ways of interpreting the data other than as described above. In most cases, with adult subjects it is appropriate to show the person the component plots. A simple explanation of what each plot means usually suffices – that is, 'Your plot shows that you have one way of looking at the world – East–West ( Component 1) – and another way of looking – North–South (Component 2) – and they each tell us something different.' You can go on talking about what you see, from time to time asking the person whether he or she thinks this is a reasonable explanation of the way in which they do see the world. By this time you will often have engrossed the person and so can bring out the third-component findings and ask about the selves/ambition results. In Kelly's terms, the grid is 'getting beyond the words'. In doing so, it is presenting the person with aspects of their construing of which they may be totally unaware or only partially consciously aware. Ryle (1975) relates this to what one is doing in psychotherapy. He says that in presenting a person with such aspects of his or her construing:

> One seems to me to be carrying out a process indistinguishable from that aspect of psychotherapeutic interpretation which is concerned with 'making the unconscious conscious', and it seems legitimate to say, therefore, that repertory grid testing is providing access to unconscious mental processes.
>
> (Ryle, 1975, pp.57–58)

It is now time to leave our single grid analysis and move on to a way of using ratings grids to help people make up their minds.

## A DECISION-MAKING GRID

This grid was described by Shaw and McKnight (1981), and can be used in any context in which a person needs to make a decision. In the example shown in Figure 7.3 it is a decision about what car to buy. One difference between the usual ratings grid and this one is that, in an ordinary ratings grid concerned with construing other people, one would always be sure to include elements to do with the 'ideal self', and in a grid about cars the 'self' would become 'the car I would like to own'. These 'self' elements do not usually play a part in the decision-making grid. The example in Figure 7.3 was derived by eliciting the subject's construing of cars using triads of cars and rating them on a 1 to 7 scale. Then, in Figure 7.4, the poles of Constructs 1, 3 and 4 are reversed so that the undesired poles of all of the constructs are on the left-hand side of the grid. This is important for the next stage of the analysis.

You will see that the reversing of the poles is accompanied by a reversal of ratings. The next step is to rate the constructs in order of their importance to the decision-maker. The rating scale of importance is from 1 to 10, where 10 represents maximum importance and 1 represents little or no importance.

To weight the ratings, you must now multiply across each row by the rating of importance. Thus Construct 1 ratings are multiplied by 4, Construct 2 ratings are multiplied by 7, and so on. The results of this weighting are shown in Figure 7.5.

It is quite clear that the only two cars in the running according to this grid are the Mini and the Honda Accord. This form of grid can be particularly useful in contexts such as career choice or house purchase, as it helps to spell out what the person is *really* looking for.

| Emergent pole | Rolls-Royce | Mini | Honda Accord | Ford Mondeo | Fiat 850 Coupé | Range Rover | Jaguar | MG GT | Implicit pole |
|---|---|---|---|---|---|---|---|---|---|
| nippy | 6 | 1 | 3 | 4 | 2 | 5 | 5 | 3 | cumbersome |
| expensive | 1 | 6 | 6 | 5 | 4 | 3 | 2 | 3 | reasonably priced |
| modern-looking | 3 | 2 | 3 | 5 | 3 | 5 | 4 | 2 | staid |
| trustworthy | 1 | 3 | 2 | 4 | 5 | 5 | 5 | 3 | unreliable |
| a status car | 1 | 6 | 5 | 3 | 5 | 3 | 2 | 3 | a practical car |

**Figure 7.3** The ratings grid for decision-making

| Emergent pole | Rolls-Royce | Mini | Honda Accord | Ford Mondeo | Fiat 850 Coupé | Range Rover | Jaguar | MG GT | Implicit pole | Importance |
|---|---|---|---|---|---|---|---|---|---|---|
| cumbersome | 2 | 7 | 5 | 4 | 6 | 3 | 3 | 5 | nippy | 4 |
| expensive | 1 | 6 | 6 | 5 | 4 | 3 | 2 | 3 | reasonably priced | 7 |
| staid | 5 | 6 | 5 | 3 | 5 | 3 | 4 | 6 | modern-looking | 2 |
| unreliable | 7 | 5 | 6 | 4 | 3 | 3 | 3 | 5 | trustworthy | 10 |
| a status car | 1 | 6 | 5 | 3 | 5 | 3 | 2 | 3 | a practical car | 8 |

**Figure 7.4** The ratings grid for decision-making, with Constructs 1, 3 and 4 reversed

| Emergent pole | Rolls-Royce | Mini | Honda Accord | Ford Mondeo | Fiat 850 Coupé | Range Rover | Jaguar | MG GT | Implicit pole | Importance |
|---|---|---|---|---|---|---|---|---|---|---|
| cumbersome | 8 | 28 | 20 | 16 | 24 | 12 | 12 | 20 | nippy | 4 |
| expensive | 7 | 42 | 42 | 35 | 28 | 21 | 14 | 21 | reasonably priced | 7 |
| staid | 10 | 12 | 10 | 6 | 10 | 6 | 8 | 12 | modern-looking | 2 |
| unreliable | 70 | 50 | 60 | 40 | 30 | 30 | 30 | 50 | trustworthy | 10 |
| a status car | 8 | 48 | 40 | 24 | 40 | 24 | 16 | 24 | a practical car | 8 |
| Sum: | 103 | 180 | 172 | 121 | 132 | 93 | 80 | 127 | | |

**Figure 7.5** The ratings grid for decision-making, multiplied by rating of construct importance

## WHOLLY OR PARTIALLY STANDARDIZED GRID FORMATS

The following are grids that have been totally or partially standardized to measure certain aspects of construing. Before looking at them, however, we thought it useful to give Kelly's own views on the idiographic vs. the nomothetic approach to data collection.

## Kelly's Views on Idiographic vs. Nomothetic Data

Some thirteen years ago, Dr Gordon Allport posed a basic problem in personality theory. He pointed out that there were two approaches to the understanding of personality. One, the nomothetic approach; the other, the idiographic approach. The nomothetic approach is used when one attempts to make many separate observations on different people and from this sample of observations, however limited or extensive, attempts to make inferences regarding people or classes of people. In its pure form a nomothetic approach is one in which a number of people are observed. The contrasting approach, and that espoused by Dr Allport, he calls the idiographic approach. When one uses this approach the universe is not a population of all the people in the world, out of which we have drawn a sample, but rather the universe is one person and the population from which our sample of observations is drawn is a population of all possible observations of a certain type made upon one person. In its purest form this approach involves multiple observations on one person only

Now, as I am sure you have already discovered if you have presented these two points of view to students, interns, or residents, the first response of the listener is usually to take sides. If the listener is 'case oriented' and tends to be sympathetic with his patients, the chances are that he will first seize upon the idiographic approach as best expressing a scientific point of view. If, by contrast, and I hope that this contrast will not be considered odious, your listener is management oriented and problem oriented, he is more likely to seize first upon the nomothetic approach as best representing a scientific point of view.

Let us examine very briefly what happens when each of the approaches is criticized from the point of view of the other. If you believe in the nomothetic approach, you will probably criticize the idiographic approach in some such manner as the following. The idiographic approach leads one nowhere except in his own private world. The idiographic observer cannot be a true observer, for the system in which he seeks to operate has no frame of reference. He cannot say that a patient is aggressive because he has established no norms which would indicate that the patient is more or less aggressive than other patients or other people. His conclusions, reached upon the basis of his pseudo-observation of a universe of behaviors in one person, have no relevance to any other person. Knowledge gained in relation to one patient provides no basis for predicting or understanding future patients. Indeed the nomothetic protagonist will say that in a practical sense it is impossible for one to be scientifically idiographic, for even the perception of behavior of another person can be accomplished only in relating to reference points established through previous experience with other patients and other people.

But let us see how the idiographic protagonist defends himself. I have never seen it better expressed than by a certain courageous student of mine who was defending his dissertation in an oral examination with an advanced degree at stake. His research had involved some experimentation with different therapeutic approaches to a small number of patients. Sure enough, one of the examiners asked him, with a strong hint of sarcasm in his voice, how in the world he thought he could prove anything with less than a hundred cases. The student was ready for that question! He said, 'Professor Blank, have you ever seen a two-headed calf and how many of them did you have to see before you believed it?'. What the student had sensed is what all followers of the idiographic approach must sense: that nature herself does not have to prove her validity. Here we can all agree. One patient suffering from anxiety is just as true a phenomenon and

> may be known with as much scientific exactitude as a thousand patients who reject Card IV on the Rorschach Test.
>
> Both the nomothetic and idiographic approaches have been fruitful in helping us develop more precise psychological tools. The nomothetic approach has contributed to the field of personnel selection in which it has been possible, through actuarial statistics, to save industry and the military forces billions of dollars and man hours in training men for highly skilled jobs. The instruments developed through the idiographic approach, while not as highly developed as personnel tests, seem to be proving useful in clinical situations. It would be unfortunate if we would have to settle upon one approach to the exclusion of the other. Rather it appears more meaningful to say, at this point in our development of a philosophy of science, that the nomothetic–idiographic dichotomy is not a true one; at least not a true one in the way it is usually expressed.
>
> (Kelly, 1951, pp.1–3, reproduced by permission of the Gladys T. Kelly Revocable Trust)

The following are some of the ways in which grids have been used either as purely nomothetic tools or as those with idiographic input as well.

## The Grid Test of Schizophrenic Thought Disorder

The first standardized grid was developed for measuring thought disorder found in some people diagnosed as schizophrenic by Bannister and Fransella (1966). The aim of this test was not to enable the psychiatrist to say 'This person is suffering from schizophrenia and therefore should be treated with such and such a drug'. It was part of Bannister's long-standing research work testing his theory that such a disorder of thinking was the result of excessive loosening of the person's construing system. Bannister thought that if one could identify this loosening early on, there was a better chance of preventing it from developing further, and perhaps even being able to help the person to tighten up their construing process. This was perhaps a rather naive expectation, as the test was used solely as a diagnostic tool by psychiatrists. This truly nomothetic measuring instrument was only created after much idiographic research into schizophrenic thought disorder conducted by Bannister and his team.

Since those early days, at least four standardized or partially standardized grids have been developed based on content of construing rather than on process. These are the Death Threat Index developed by R.A. Neimeyer and colleagues, the Performance Profile developed by Richard Butler (1996), the Self-Image Profile (Butler, 2001) for use with children, and the grid for Identity Structure Analysis (Weinreich & Saunderson, 2003).

## The Death Threat Index

As its name indicates, this index examines how people deal with the threat implicit in the awareness of imminent, comprehensive change in their core

role structures when asked to reflect on their own mortality. The current index is the result of years of work by R.A. Neimeyer and others. The Death Threat Index was developed into a standardized measure by establishing a manual of constructs elicited from a large number of people. The frequently occurring constructs were then sorted into 19 categories. These were revised into a 25-category coding system (Epting & Neimeyer, 1984). Split-half and test–retest reliabilities (over a 3-week period) ranging from 0.93 to 0.73 were reported by Krieger, Epting and Leitner (1974).

The Death Threat Index was further developed into the Death Attitude Repertory Test (DART), in which 15 standard situations are presented (some of which come from the original Death Threat Index) and a total of 15 personal constructs are elicited. These are rated for the 15 situations on a 13-point scale. An overview of the 20 years of research using the Death Threat Index can be found in Neimeyer and Epting (1992).

Over the years, measures of the threat of death have been developed in numerous contexts, including such topics as the death threat experienced by suicide intervention workers (Neimeyer & Dingemans, 1980), the personal anxieties about death that are experienced by gay and bisexual men in relation to the AIDS epidemic (Bivens *et al*., 1994) and, more recently, the concerns of counsellors working with the bereaved and with those suffering from AIDS (Kirchberg, Neimeyer & James, 1998). As postulated, counsellors reported greater discomfort in responding to the death situations than to non-death situations, a response that proved to be mediated by the personal death fears of the counsellor.

## The Self-Image Profile (SIP)

Here the scales used were generated from samples of children (aged 7 to 11 years) and young people (aged 12 to 16 years). There are about 20 items on which the child rates 'how I am' and then 'how I would like to be'. The scales range from 0 (not at all) to 6 (very much). As Butler and Green (1998) have pointed out, this is not a totally nomothetic test. Flexibility is built into the SIP. Constructs can be changed, deleted or added according to the requirements for each individual child. Furthermore, the elements can differ according to purpose. A child who feels hard done by might rate himself on 'how my father expects me to be'. Butler (1994) suggested that scoring could be carried out by having the first, say, 10 items with the positive pole of constructs scoring 6 for 'very much so', and the next 10 items with the negative poles scoring 6 for 'very much so'. This gives a general view of whether the child sees him- or herself in a good or poor light. Such profiles can provide useful information on which to base a programme designed to help the child to change. Importantly, this information can indicate whether or not a child wishes to change.

### Performance Profiling

Butler (1996) has also produced a similar profiling method that enables a coach or psychologist to uncover an athlete's (or a group of athletes) construing of their performance. Again, the method consists of the athlete rating his or her own personal constructs on the elements 'as I am now' and 'ideally like to be' when performing. The way in which athletes construe their strengths and weaknesses in relation to performing can be identified and ways of reducing the gap designed.

### Analyzing Identity

Details of this tool, known as Identity Structure Analysis (ISA), together with descriptions of empirical studies can be found in Weinreich and Saunderson (2003). The ISA has been developed over many years, mainly by Peter Weinreich. It is interesting to note that the authors use the terms 'constructs', 'construing' and 'bipolarity', and have an example of a page in their questionnaire that is identical to a grid page in which one construct is rated on all elements at a time. Despite this, there is only a one-page reference to 'repertory grid' in the index. Although the authors appear to distance themselves from the grid, Rom Harré says in his Foreword to the book:

> In many ways the ISA approach is sibling to the well-established methods of repertory grid analysis. It uses bipolar constructs; it is oriented towards the idiographic aspects of personhood and so towards psychological reality . . . The empirical studies enrich the programme in many ways, but the ones reported in this volume have a special interest. They show how ISA can serve as the research tool *par excellence* in bringing to light the subtle interplay between self-construal and construal of others through the relation of 'identification with (or not with)'.
>
> (Weinreich & Saunderson, 2003, p.xxii)

There is computer software (described in the book) to assess the many measures of identity.

## CONCLUSIONS

The theme running through this chapter is about the type of data that personal construct psychologists think appropriate to use in their construction of repertory grids. Two purely idiographic descriptions are given at the start of the chapter. Namely, the interpretation of results from a single grid from a single person, and a grid method designed to help an individual come to a decision. Other methods range from those that use data derived from many people but allow the resulting grids to be modified to include data from the individual, to those that are totally nomothetic and so compare grid results from individual with data derived from many people.

But as Kelly says in the chapter, *idiographic* should not be considered to be the polar opposite of *nomothetic*. Both methods of data collection have their uses.

Chapter 8

# SOME USES TO WHICH GRIDS HAVE BEEN PUT

As already mentioned, Kelly equated the concept of validity with *usefulness*. That basically involves many people trying to use grid methods and/or personal construct theory as a way of exploration and finding, by direct experience, whether or not grids are of value to them.

Faced with the massive literature on work using repertory grid methods since 1977, all we can do here is present an assortment of studies which will show something of the grid's range of application and the ways in which it has indeed been found to be useful. Early as well as later studies are mentioned to give a sense of the history of inquiries. We have tried to sort these applications into very rough groupings. Some have subgroups, such as 'clinical' and 'social', because of their awesome size, while others consist of only two or three references. Many groups or subgroups start off with a reference to some theoretical work in that area, for the vast majority of grid work does not occur in a theoretical vacuum. For each study mentioned the reference is given and a short statement on what the work is about. Occasionally there is a longer statement. There are two reasons for this. The first is that the report describes a method that may be found useful with a particular group of people, such as children. The second is simply that it was found difficult to shorten! There is inevitably some overlap with studies reported in previous chapters, but here the focus is on usefulness rather than on specific usage or measures. References in the general overviews and within abstracts can be found in the main reference list at the end of the book.

Since nearly all reports of work with others have used ratings or rankings grids, work using other types of grid is not listed separately, but is included under a 'usage' heading.

## GRIDS IN GENERAL

Most of the literature on grids as such has been covered in preceding chapters, such as the use of supplied or provided constructs. Here are just a few early sources that may have been mentioned before but which now form part of the history of repertory grid methods.

Levy, L.H. (1954) Personal constructs and predictive behaviour. *Journal of Abnormal and Social Psychology*, **53**, 54–58.

In this classic study it was found that, under conditions of high invalidation, a greater amount of reconstruction occurred in constellatory constructs than in propositional constructs (those which do not fix the other realm memberships of their elements). Those constructs which were most interdependent were considered to be constellatory. It was concluded that there is an inverse relationship between the range of interdependency of a construct and its susceptibility to change following predictive failure. This is one of the few studies to attempt a grid definition of *propositional–constellatory*.

Bannister, D. (1962b) Personal construct theory: a summary and experimental paradigm. *Acta Psychologica*, **20**, 104–120.

The fundamental postulate and 11 corollaries making up the backbone of personal construct theory are outlined. Aspects of construing are discussed and the repertory grid is presented, together with an experiment employing the grid. The conclusion of the experiment is that, in a personal construct theory framework, 'it is theoretically and experimentally meaningful to talk of construct systems as independent of the particular elements construed.'

Bannister, D. & Bott, M. (1973). Evaluating the person. In P. Klein (Ed.), *New Approaches to Psychological Medicine*. Chichester: John Wiley & Sons.

This reference provides a critique of conventional testing assumptions, a discussion of grid method, an evaluation of joint grids by a married couple, and a discussion of the uses of the grid for the person who completes it.

Yorke, D.M. (1985) Administration, analysis and assumption: some aspects of validity. In N. Beail (Ed.), *Repertory Grid Technique and Personal Constructs: Applications in Clinical and Educational Settings*. London: Croom Helm.

Yorke provides a broad coverage of various issues that can relate to grid output, many of which have been referred to in previous chapters in this book. He is concerned about what he describes as slippage towards an attitude of 'anything goes' as far as grid design is concerned.

We shall now move on to the use of grids in practical settings.

## IN THE CLINICAL SETTING

Perhaps because George Kelly was primarily a clinical psychologist, or perhaps because so-called 'abnormal subjects' do not readily psychologically sit still for standard tests and experimental procedures, the grid has been widely used in areas of so-called psychopathology. Much of its use has been with individuals, as a way of trying to increase the psychologist's understanding of how the person views the world. The grid draws attention to those aspects of life which are problematic for the individual, as opposed to the ways in which the individual is problematic for society. Obviously the vast majority of such investigations in clinical settings are never formally published, but enough are available to indicate the richness of interpretable material which the grid can provide in the field.

### General Coverage

The following are some general sources containing some descriptions of the use of repertory grids in clinical settings. Details from some of these are then discussed under specific headings.

Winter, D.A. (1992) *Personal Construct Psychology in Clinical Practice: Theory, Research and Applications*. London: Routledge.

This is a massive overview of personal construct theory and clinical practice up to 1992.

Bannister, D. (1965b) The rationale and clinical relevance of repertory grid technique. *British Journal of Psychiatry*, **111**, 977–982.

This paper gives a description of the method and its use in the clinical field, particularly with individuals.

Ryle, A. (1975) *Frames and Cages: the Repertory Grid Approach to Human Understanding*. London: Chatto & Windus.

This book provides an overview of how Ryle sees the grid being of use in clinical practice and research. In particular, he discusses how the grid can help to investigate psychodynamic concepts such as oedipal patterns, projection and introjection, repression and denial.

Ryle, A. (1976) Some clinical applications of grid technique. In P. Slater (Ed.), *The Measurement of Intrapersonal Space by Grid Technique. Volume 1. Explorations of Intrapersonal Space*. London: John Wiley & Sons.

Beail, N. (Ed.) (1985) *Repertory Grid Technique and Personal Constructs: Applications in Clinical and Educational Settings*. London: Croom Helm.

Button, E. (Ed.) (1985) *Personal Construct Theory and Mental Health*. London: Croom Helm.

This clinical section is so large that we have divided it up rather roughly into different psychological problems. Within the main section, the area of psychotherapy is itself so large that we are citing only a chapter by

David Winter which gives a very recent survey of the literature on grid work in psychotherapy. The full reference is given under the 'Psychotherapy' subheading.

## Abuse

### *General Coverage*

There is also a section later on 'forensic' work, but there is enough published work under 'Abuse' for it also to be included under the 'clinical' heading.

Cummins, P. (1992). Reconstruing the experience of sexual abuse. *International Journal of Personal Construct Psychology*, **5**, 355–366.

Cummins and others have considered the effects of childhood sexual abuse from a theoretical perspective. Cummins argues that quite often the construing is non-verbal and presents itself in physical forms. As with much other psychotherapy, it is necessary for those who have been abused to 'think the unthinkable' before being able to attach verbal labels to their construing.

### *Specific References*

Alexander, P.C. (1987) Personal constructs in the group treatment of incest. In R.A. Neimeyer & G.J. Neimeyer (Eds), *Personal Construct Therapy Casebook*. New York: Springer.

Grids as well as other methods of measurement were administered to a therapy group of seven women and two female therapists after the first and ninth group sessions. Group members saw their therapists as significantly close to their ideal, with correlations usually in the 0.90s. There was a reduction in the 'self'/'ideal self' distance over time for all group members except one (and for this individual there was a reason). The author points to the validity of the grid outcome measures, as similar changes in scores were obtained on the other measures.

Chin-Keung, L. (1988) PCT interpretation of sexual involvement with children. In F. Fransella & L. Thomas (Eds), *Experimenting With Personal Construct Psychology*. London: Routledge & Kegan Paul.

Constructs were elicited through interview. In total, 15 subjects in the sample had been arrested for a sexual offence against under-age persons and 10 subjects had no record of such arrest. Some were exclusively attracted to boys and saw that as part of their nature. Some thought sexual involvement with children was a perfectly normal part of human sexuality. Some belonged to paedophile organizations and some did not. The conclusion drawn from this interesting study was that 'sufficient has been said to illustrate how intimate relationships with children have

provided some of them with a *raison d'être* to anchor their human experience' (p.284).

Harter, S.L. (2000) Quantitative measures of construing in child abuse survivors. *Journal of Constructivist Psychology*, **13**, 103–116.

The repertory grid was one of many measures used in this study. One of the few significant findings from the repertory grid was that the group of abused adults perceived themselves as significantly more different from their parents than did subjects in non-abuse groups. A possible reason for the lack of other significant findings with the grid offered by Harter was that no attempt had been made to elicit more value-laden constructs by laddering.

Freshwater, K., Leach, C. & Aldridge, J. (2001) Personal constructs, childhood sexual abuse and revictimization. *British Journal of Medical Psychology*, **74**, 379–397.

The construing of women who had and had not had experience of childhood sexual abuse was studied, with a particular focus on their construal of relationships with men. Dyad grids made up of relationships such as 'first abuser to child self' and 'child self to first abuser' were used. One of the many findings was that the 'self/ideal self' discrepancy was significantly different for those who had suffered childhood sexual abuse compared with those who had not had that experience. It is noteworthy that the author felt that, although group comparisons move away from individual meaning, this is compensated for by the grid administration process itself often leading to psychological change and reconstruing.

## Anorexia Nervosa, Bulimia and Obesity

### *General Coverage*

Eric Button's extensive work on eating problems can be found in the following:

Button, E.J. (1993) *Eating Disorders: Personal Construct Therapy and Change*. Chichester: John Wiley & Sons.

Shorter accounts can be found in the following:

Button, E.J. (1987) Construing people or weight? An eating disorders group. In R.A. Neimeyer & G.J. Neimeyer (Eds), *Personal Construct Psychology Casebook*. New York: Springer.

Button, E.J. (1992) Eating disorders and personal constructs. In R.A. Neimeyer & G.J. Neimeyer (Eds), *Advances in Personal Construct Psychology*, *Volume 2*. Greenwich, CT: JAI Press.

*Specific References*

Fransella, F. & Crisp, A.H. (1970) Conceptual organisation and weight change. *Psychosomatics and Psychotherapy*, **18**, 176–185.
Changes of the self and others for two obese women during weight change were studied. During weight loss, the view of the self polarized from being evaluatively 'bad' to being close to the ideal. With weight gain, the self reverted to being 'bad'. After the initial weight loss, a change in self-construing occurred *before* the change from weight loss to weight gain. The postulated prognostic value of the degree of complexity of the construing system could not be tested, as neither of the women retained their weight loss.

Fransella, F. & Crisp, A.H. (1979) Comparisons of weight concepts in groups of neurotic, normal and anorexic females. *British Journal of Psychiatry*, **134**, 79–86.
One important finding was of a positive correlation between the constructs *self at normal weight* and *self at ideal weight* for the anorexic female group, instead of the negative correlation that clinical experience leads one to expect.

Worsley, A. (1981) In the eye of the beholder: social and personal characteristics of teenagers and their impressions of fat and slim people. *British Journal of Medical Psychology*, **54**, 231–224.
A total of 138 secondary-level students rated six elements on 28 supplied and elicited personal constructs and completed the Eysenck Personality Inventory. The results were complex. Amongst them was the finding that the more girls saw themselves as fat, the more negatively they rated themselves. This did not apply to the boys.

Leitner, L.M. & Grant, C.H. (1982) Obesity, personal constructs, and amount of weight loss. *Psychological Reports*, **50**, 491–448.
This study looked at change in construing for 20 undergraduates during a weight reduction programme. One important measure was the 'ordination' of the construct *myself as overweight* vs. *myself as not overweight*, 'ordination' being the degree to which a construct related to other constructs. It was found that the more 'ordinating' that construct was at the start of the group, the less weight loss occurred during the programme. If ordination is similar to Fransella's 'saturation' score (Fransella, 1972), then this finding is similar to that found by Fransella with people who stutter.

Marsh, M. & Stanley, R. (1995) Assessment of self and others during treatment for anorexia nervosa. *Journal of Constructivist Psychology* **8**, 97–116.
Ratings repertory grids were used to compare a group of anorexic women with women of normal weight and with dieting women. The anorexic group differed from the other two groups in a number of ways. For instance, 'self as I am' was isolated from all other elements, but this did not occur with the other two groups.

## Body Image

### *General Coverage*

Fransella, F. (1978) *Our Body Shape – in Fact and in Imagination*. Bath: British Association for the Advancement of Science.

This is a discussion of research carried out with people with eating disorders – that is, anorexia nervosa or obesity. Although there are some problems with regard to different measures measuring different things, the results show that the very thin and the very fat both overestimate their size and shape more often than do individuals with no weight problems. Pregnant women also overestimate their size early in pregnancy, but this error decreases as pregnancy proceeds.

### *Specific References*

Feldman, M.M. (1975) The body image and object relations: exploration of a method utilizing repertory grid techniques. *British Journal of Medical Psychology*, **48**, 317–332.

This study shows how an application of the repertory grid allows one to determine properties of the body representation of *self*, *mother*, *father*, *partner* and *ideal self*. To illustrate the possibilities of the approach, the results from two women of normal weight and two patients with anorexia nervosa were described and discussed.

Button, E., Fransella, F. & Slade, P. (1977) A reappraisal of body perception disturbance in anorexia nervosa. *Psychological Medicine*, **7**, 235–243.

It was postulated (1) that at the start of treatment anorexic patients would overestimate their body size, and that when normal weight is regained they would become more realistic about their body size, and (2) that the anorexic patients would differ significantly from a non-anorexic group of young females in overestimation of body size. No support was found for either hypothesis. Various reasons for these results are discussed. However, marked body image overestimation was related to early relapse.

Fransella, F. & Button, E. (1983) The 'construing' of self and body size in relation to maintenance of weight gain in anorexia nervosa. In *Anorexia Nervosa: Recent Developments in Research*. Oxford: Blackwell.

The two studies discussed provide support for Fransella's (1972) research with people who stutter. The more meaningful the self is in relation to weight, the poorer the clinical outcome. In addition, an increase in meaningfulness of being anorectic compared with being a normal weight from the time of admission to the time of discharge was related to poor clinical outcome. That is, the young women who failed to maintain their weight came to construe themselves more clearly as anorectic.

## Depression

### *General Coverage*

Much theorizing has been carried out relating to the experience of depression. For instance, there are four chapters in the following:

Epting, F.R. & Landfield, A.W. (Eds) (1985) *Anticipating Personal Construct Psychology*. Lincoln, NE: University of Nebraska Press.

See also:

Landfield, A.W. & Epting, F.R. (1987) *Personal Construct Psychology: Clinical and Personality Assessment*. New York: Human Sciences Press.
Several single case studies are reported in this volume.

Neimeyer, R.A. (1984) Toward a personal construct conceptualization of depression and suicide. In F.R. Epting & R.A. Neimeyer (Eds), *Personal Meanings of Death: Applications of Personal Construct Theory to Clinical Practice*. New York: Hemisphere Publishing Corporation.
Apart from looking at the topic from a personal construct theoretical perspective, this chapter describes research to test the theoretical concepts.

### *Specific References*

Rowe, D. (1971) Poor prognosis in a case of depression as predicted by the repertory grid. *British Journal of Psychiatry*, **118**, 231–244.
For this depressed woman, being depressed meant that she was a much better person than people who were not depressed. However, this also indicated that she was unlikely to improve under treatment because of her view of the nature of her depression.

Hewstone, M., Hooper, D. & Miller, K. (1981) Psychological change in neurotic depression: a repertory grid and personal construct theory approach. *British Journal of Psychiatry*, **139**, 47–51.
In this study, as those with depression improved, so they saw themselves, in grid terms, as becoming more similar to others.

Sheehan, M.J. (1981) Constructs and 'conflict' in depression. *British Journal of Psychology*, **72**, 197–209.
Conflict is measured by the number of 'imbalanced' triads. An imbalance is said to occur when three correlations between constructs are negative or else two are positive and one is negative (*see* Chapter 5 for more details of this measure). In this study, it was found that 'conflict' varied with mood. As mood improved, so the level of conflict increased.

Sheehan, M.J. (1985) A personal construct study of depression. *British Journal of Medical Psychology*, **58**, 119–128.
Sheehan used two grids. Grid A was traditional in using self and others as elements – the 'looking out' grid. Grid B used the same elements as Grid

A, but this time the person rated how others saw him or her – the 'looking in' grid. The results obtained from the two types of grid are of particular interest. 'Conflict' increased over time, particularly in the 'looking in' grids. The 'looking in' grids also changed over time much more than the 'looking out' grids. Sheehan suggests that these findings support the view that improvement in depression results from a greater change in the construing of the self.

Neimeyer R.A., Heath, A.E. & Strauss, J. (1985) Personal reconstruction during group cognitive therapy for depression. In F.R. Epting & A.W. Landfield (Eds), *Anticipating Personal Construct Theory*. Lincoln, NE: University of Nebraska Press.

The 10 elements in this study were the self in various roles. Apart from significant relationships between severity of depression and suicidal thoughts, little was clear-cut. However, as depression changed from moderate to severe, there was a general tightening of construing as a predominantly negative self-system emerged. Improvement in depressive symptoms was accompanied by changes in construing.

Haltenhof, H., Stapenhorst, J. & Krusel, R. (1996) Personal construct approach to depressive disorders: a short review of the literature and preliminary results of two studies. In J.W. Scheer & A. Catina (Eds), *Empirical Constructivism in Europe: the Personal Construct Approach*. Giessen: Psychosozial-Verlag.

Two studies are reported in this review. In the first, a comparison was made of the personality features and interpersonal relationships between patients with unipolar and bipolar depression. Those with bipolar depression experienced significantly more social isolation. The second study looked at the experience of 32 patients with unipolar endogenous depression, who had also formerly suffered from a bodily disease. Depression was experienced as negative feelings of criticism and rejection in 90% of cases, and was accompanied by bodily disease in 69% of cases.

## Suicide, Attempted Suicide and Self-Harm

### *General Coverage*

The major work on how suicide can be regarded from a personal construct theory standpoint is Kelly's own chapter in the following:

Kelly, G.A. (1961b) Suicide: the personal construct point of view. In N.L. Faberow & E.S. Schneideman (Eds), *The Cry for Help*. New York: McGraw-Hill.

See also:

Landfield, A.W. and Epting, F.R. (1987) *Personal Construct Psychology: Clinical and Personality Assessment*. New York: Human Sciences Press.

These authors provide several single case studies.

Stefan, C. & Von, J. (1985) Suicide. In E.R. Button (Ed.), *Personal Construct Theory and Mental Health*. London: Croom Helm.

Winter, D. (2003a) Psychological disorder as imbalance. In F. Fransella (Ed.) *A Handbook of Personal Construct Psychology*. Chichester: John Wiley & Sons.

This chapter looks at disorder in general terms from a personal construct perspective, and then uses self-harm as an example of Winter's theorizing.

The reference by R.A. Neimeyer (1984) listed under 'Depression' is also relevant here.

### *Specific References*

Landfield, A.W. (1976) A personal construct approach to suicidal behaviour. In P. Slater (Ed.), *The Measurement of Intrapersonal Space by Grid Technique. Volume 1. Explorations of Intrapersonal Space*. London: John Wiley & Sons.

Using Kelly's definition of suicide, defined here as 'awareness of imminent breakdown of their personal construct system', grids were collected from students, some of whom had made serious suicidal attempts. Functionally independent construction (FIC) scores were used to measure construct interrelatedness or organization. The case of one student who committed suicide after completing the grid is discussed.

Parker, A. (1981) The meaning of attempted suicide to young parasuicides: a repertory grid study. *British Journal of Psychiatry*, **139**, 306–312.

A distinction was made between a group of those who had 'attempted' suicide (15 people) and those who were apparently serious in their attempt (14 people). The 'low intent' group perceived taking an overdose as similar to 'being alone and crying' and 'getting drunk', whereas those who appeared to have made a serious attempt to end their lives perceived 'an overdose' and 'suicide' in quite similar terms.

## Obsessional Behaviour

### *General Coverage*

Fransella, F. (1973) Thought process in the obsessional. In H.R. Beech (Ed.), *Obsessional Disorder*. London: Methuen.

The author puts forward a personal construct explanation of obsessional neurosis based on grid results. The obsessional's world becomes increasingly meaningless as he or she retreats into a more and more constricted world – the world of symptoms. If that were the case, Fransella suggests that, as with people who stutter (Fransella, 1972), treatment should focus on the elaboration of the person's 'non-symptom' constructs.

*Specific References*

Makhlouf-Norris, M.F., Jones, G.H. & Norris, H. (1970) Articulation of the conceptual structure in obsessional neurosis. *British Journal of Social and Clinical Psychology*, **9**, 264–274.

These authors differentiated people with obsessional problems from 'normals' by showing them to have 'monolithic' or 'segmented' conceptual structures and 'articulated' structures, respectively. A rated grid with elicited constructs from role titles was used. 'Monolithic' structure is marked by one large cluster of constructs accounting for the mass of the variance. 'Segmented' structure is characterized by several largely unrelated clusters and 'articulated' structure by several linked clusters. There is some evidence that 'monolithic' or 'segmented' structures are not peculiar to people with obsessional disorders, but may be found generally in those suffering from neurotic problems.

Makhlouf-Norris, F. & Norris, H. (1972) The obsessive-compulsive syndrome as a neurotic device for the reduction of self-uncertainty. *British Journal of Psychiatry*, **121**, 277–288.

A group of 11 people with obsessional neuroses was compared with matched normal controls in terms of their personal construct systems. A measure was described which shows the integration of the concepts of self and ideal self relative to concepts of other people. The results are presented in the form of a two-dimensional self-integration plot. The 'obsessional' self-concepts were isolated from concepts of other people and alienated from the ideal self. The self-concepts of 'normal' people were neither isolated nor alienated.

Rigdon, M.A. & Epting, F.R. (1983) A personal construct perspective on an obsessive client. In J. Adams-Webber & J.C. Mancuso (Eds), *Applications of Personal Construct Theory*. Ontario: Academic Press.

These authors present repertory grid data for a single person, Jay. Various measures were used including the functionally independent constructions (FIC) and ordination analyses, principal-components analysis, and the articulation analysis of Makhlouf-Norris, Jones and Norris (1970). The findings that were obtained using these measures are discussed in the context of Jay's psychotherapy sessions.

## Phobias

*General Coverage*

Dunnett, G. (1988) Phobias: a journey beyond neurosis. In F. Fransella & L. Thomas (Eds), *Experimenting with Personal Construct Psychology*. London: Routledge & Kegan Paul.

Here the discussion is about how a personal construct understanding of phobias differs from the psychiatric medical model of that syndrome.

Winter, D.A. (1989) An alternative construction of agoraphobia. In K. Gournay (Ed.), *Agoraphobia: Current Perspectives on Theory and Treatment*. London: Routledge.

Winter discusses how research in this area has been fraught with methodological problems, which have led to inconsistent findings.

*Specific References*

O'Sullivan, B. (1985) The experiment of agoraphobia. In N. Beail (Ed.), *Repertory Grid Technique and Personal Constructs: Applications in Clinical and Educational Settings*. London: Croom Helm.

Using a rank-order grid, supplied constructs and 14 role titles, the agoraphobic group was found, among other things, to have a wide discrepancy between the self and ideal self on the first component of the principal-components analysis, which was not found in the other two groups. In addition, loading highly on the first components for the agoraphobic group were constructs to do with feelings, namely *fear of open space* and *fear if out of home alone*.

Winter, D.A. & Gourney, K. (1987) Constriction and construction in agoraphobia. *British Journal of Medical Psychology*, **50**, 341–348.

These authors' results demonstrated that people with agoraphobia perceived less anger and selfishness than individuals who did not suffer from agoraphobia. This is consistent with the suggestions of theorists that agoraphobic people deal with hostility and conflict by using constriction to exclude any conflict situations.

Sanz, J., Avia, M.D. & Sanchez-Bernardos, M.L. (1996) The structure of the construct system in social anxiety: qualifications due to affective confounding. *Journal of Constructivist Psychology*, **9**, 201–212.

These authors found that students who suffered from social anxiety did not differ from those who did not. However, if students scored high on social anxiety and also scored high on the Beck Depression Inventory, they did differ from the control group of students in having lower levels of cognitive complexity.

Metcalfe, C. (1997) The relationship between symptom constructs and social constructs in agoraphobia. In P. Denicolo & M. Pope (Eds), *Sharing Understanding and Practice*. Farnborough: European Personal Construct Association Publications.

Elicited and supplied constructs were used, including the supplied construct *able to go out* vs. *not able to go out*, to represent the symptom. This construct failed to integrate well with other constructs concerned with social interactions. Suggested explanations for this finding include having a supplied rather than an elicited construct to do with the client's symptom.

## Schizophrenic Thought Disorder

### *General Coverage*

This area is dominated by the work of Don Bannister, some of which has been described in Chapter 6. Coverage of his work and contribution can be found in the following:

Fransella, F. (2003b) From theory to research to change. In F. Fransella (Ed.), *A Handbook of Personal Construct Psychology*. Chichester: John Wiley & Sons.

Bannister, D. & Fransella, F. (2003) *Inquiring Man*, 3rd edn (e-book). London: Taylor & Francis.

Below we give annotated references for some of the studies.

### *Specific References*

Bannister, D. (1960) Conceptual structure in thought-disordered schizophrenics. *Journal of Mental Science*, **106**, 1230–1249.

This is the first paper in the series which used grids to establish that abnormally loosened construing is a central feature of thought disorder. The grids that were used in this study had people known personally to each participant as elements, and were of the matching score variety. The measures derived from the grid were consistency (stability of the pattern of construct relationships over repeat testing), intensity (the degree of relationship between constructs), coefficient of variation (the degree of variability in strength of construct relationships within the single construct system) and social deviation (comparison of a particular pattern of constructs' relationships for an individual with the average normative pattern).

Bannister, D. (1965) The genesis of schizophrenic thought disorder: re-test of the serial invalidation hypothesis. *British Journal of Psychiatry*, **111**, 377–382.

This study presented separate constellations of constructs in grid format. For one group the constellations were serially validated and for the second group they were serially invalidated. The inter-correlations of the validated constellation increased, while in the invalidated constellation the pattern of constructs relationships repeatedly changed and the strength of correlations ultimately decreased. Although the formal topic of the paper is 'thought disorder', the implications of the study concern validation–invalidation. It illustrates the use of grids in a process experiment.

Bannister, D. & Fransella, F. (1965) A repertory grid test of schizophrenic thought disorder. *British Journal of Social and Clinical Psychology*, **2**, 95–102.

This study confirms earlier findings that thought-disordered schizophrenics employ loosened constructions which have low inter-correlations and low consistency on grid testing. This finding is used to construct a standardized test for thought disorder for clinical use. The test

differentiated thought-disordered schizophrenics from non-thought-disordered schizophrenics, those diagnosed with depression, neurosis or organic lesions and 'normals'.

Bannister, D. & Salmon, P. (1966b) Schizophrenic thought disorder: specific or diffuse? *British Journal of Medical Psychology*, **39**, 215–219.

Thought-disordered patients and 'normals' were given two grids, one with physical objects as elements and the other with photographs of people as elements. These were designed to test the degree of structure and stability of construing in 'thinking about people' and 'thinking about objects'. It was found that the thought-disordered group had lost structure much more markedly in the area of 'thinking about people'. The study is technically useful as an example of investigation of the comparison of degree of structure within different construing areas using grids which are broadly equivalent except for a difference in elements.

Bannister, D., Fransella, F. & Agnew, J. (1971) The characteristics and validity of the grid test of thought disorder. *British Journal of Social and Clinical Psychology*, **2**, 144–151.

A sample of 316 admissions to a psychiatric hospital was given the Grid Test of Thought Disorder. Test indices were shown to relate to case-note judgements and marginally to prognostic data of the 'condition on discharge' type. The relationship between grid scores and diagnostic category was examined. A measure of the degree of abnormality of patterning of construct relationships (*social deviation*) was derived from the grid and was shown to be related to structural thought disorder, sex and presence of a precipitating factor for the '*illness*'.

McFadyen, M. & Foulds, G.A. (1972) Comparison of provided and elicited grid content in the Grid Test of Schizophrenic Thought Disorder. *British Journal of Psychiatry*, **121**, 53–57.

Thought-disordered and non-thought-disordered subjects were given the standard grid test of thought disorder and a Kelly Rep Test for which elements and constructs were elicited individually. Between-group differences were broadly evident for both types of grid.

McPherson, F.M., Blackburn, I.M., Draffan, J.W. & McFayden, M.A. (1973) Further study of the Grid Test of Thought Disorder. *British Journal of Social and Clinical Psychology*, **12**, 420–427.

The performance of 36 thought-disordered schizophrenics, 24 non-thought-disordered schizophrenics, 18 patients diagnosed with mania and 33 patients with depression was compared on four measures derived from the Bannister–Fransella Grid Test of Thought Disorder (Intensity, Consistency, Element Consistency and Social Deviation). On all four measures, the thought-disordered schizophrenics had significantly poorer scores than the other groups. These other groups did not differ from each other. Within a subgroup of 19 schizophrenics, each of the four measures correlated significantly with clinical ratings of the severity of thought

disorder. However, when the effects of Intensity and Consistency were each partialled out, the correlation between Element Consistency and clinical ratings was reduced to insignificance, whereas when Element Consistency was partialled out, Intensity and Consistency remained significantly correlated with the ratings.

McPherson, F.M., Armstrong, J. & Heather, B.B. (1975) Psychological construing, 'difficulty' and thought disorder. *British Journal of Medical Psychology*, **48**, 303–315.

Two versions of the repertory grid test of thought disorder were constructed. They had similar elements (photographs of people), but one of them used psychological constructs and the other used non-psychological constructs. The versions had been matched for 'difficulty' (defined in terms of the amount of the consensual agreement) and reliability. The mean Intensity and Consistency scores obtained by the non-thought-disordered control group were similar. When 'difficult' and 'easy' versions of the test were given to 'normal', general psychiatric and thought-disordered groups, it was found that 'difficulty' had no effect on grid test scores, but the use of 'psychological' constructs significantly disabled the thought-disordered group.

## Psychotherapy

As has already been mentioned, there has been so much research on psychotherapy using grids that we are referring you to just one journal paper which reviews the literature to date:

Winter, D.A. (2003c) Repertory grid technique as a psychotherapy research method. *Psychotherapy Research*, **13**, 25–42.

However, we shall just mention a few of the early studies exploring what was then a new area, namely the use of grids with a group of people.

### *General Coverage*

There have been several studies in which grids have been used with a group of people, mainly with therapy groups. The essential feature of some of the early studies is that the elements are the members of the group and include each member completing the grid. Thus in a group of eight, the elements would be the other seven group members and 'me'.

These and other related investigations suggest that the virtue of the grid (its validity) does not reside simply in its capacity to discriminate between one diagnostically defined group and another, or between 'before' and 'after' treatment groups, and so on. More significantly, it distinguishes between groups in such a way as to test hypotheses concerning psychological process. Such hypotheses may be framed in construct theory terms or in other

psychological languages, but they can be logically related to the explicit rationale of repertory grid technique.

*Specific References*

Watson, J.P. (1970) A repertory grid method of studying groups. *British Journal of Psychiatry*, **117**, 309–318.

This early study used a modified repertory grid method and suggested that grids can provide information about interpersonal relationships within groups, psychological features of individual group members and changes occurring in individuals taking part in group therapy.

Fransella, F. & Joyston-Bechal, M.P. (1971) An investigation of conceptual process and pattern change in a psychotherapy group. *British Journal of Psychiatry*, **119**, 199–206.

These authors disputed the study by Watson mentioned above. They felt that the therapist might be seen as a different being from those forming the therapy group, and that they would not be able to construe the therapist along the same dimensions as themselves – the therapist might be outside the range of convenience of some of the constructs. They used a rankings grid and derived a 'person perception score'. Since each group member has ranked all of the other group members on each of the constructs, one can simply look to see how any group member has ranked him- or herself on a given construct and see how others have ranked him or her on that construct. Of course, such use of grids has to face the supplied vs. elicited construct issue. It could be argued that the best one can do in these circumstances is to elicit constructs from group members and then ask these group members to decide which constructs are both important and usable by all members. Such 'group grids' can be useful for assessing changes in the group members' construing of themselves and each other over time.

Smail, D.J. (1972) A grid measure of empathy in a therapeutic group. *British Journal of Medical Psychology*, **45**, 165.

In studying psychotherapy groups, Smail used the grid as a measure of empathy. The experiment was conducted in two stages so that the relevance of grid measures could be maximized. Empathy scores were validated against patients' and therapists' ratings, as well as being related to a questionnaire measure of thinking–introversion. Positive relationships were demonstrated between all of these measures.

Caplan, H.L., Rohde, P.D., Shapiro, D.A. & Watson, J.P. (1975) Some correlates of repertory grid measures to study a psychotherapeutic group. *British Journal of Medical Psychology*, **48**, 217–226.

Repertory grid data provided monthly by the members of a psychotherapeutic group were related to measures of verbal behaviour during group sessions in ways which were both statistically significant and

psychologically meaningful. There was evidence that the group members re-enacted earlier patterns of family relationships in their mutual interactions. For individual patient members of the group, speaking, being spoken to and introducing several kinds of topic into the group discussion had significant associations with grid variables implicating self-esteem and patterns of identification with parents. However, the correlation patterns varied between patients.

Fransella, F. (1970a) . . . and then there was one. In D. Bannister (Ed.), *Perspectives in Personal Construct Theory*. London: Academic Press.

Grids were completed by the therapy group (using themselves as elements), the therapist and the observer. Changes in tightening and loosening of construing tended to occur at the same times for all, including the observer.

## The 'Self' and 'the Symptom'

### *General Coverage*

Over the years there has been fluctuating interest in the issue of whether people with a particular problem see themselves as being like others who have that problem. As can be seen from the examples of studies below, there have been conflicting results. In 1977, Fransella wrote about 'The self and the stereotype' (in D. Bannister (Ed.) (1977) *New Perspectives in Personal Construct Theory*. London: Academic Press). She argued that the evidence clearly suggested that many people disassociate themselves from the stereotype. For example, 'I am not like that group of ''nail biters'' – but will agree that ''I bite my nails'' '. Those who have had their problem for many years give the stereotype a life of its own and may have some difficulty changing that behaviour. Details of Fransella's own grid work are given in the Specific References section below.

### *Specific References*

Bannister, D. (1965b) The rationale and clinical relevance of repertory grid technique. *British Journal of Psychiatry*, **111**, 977.

In a grid completed by an agoraphobic woman, the construct *people who can go anywhere with confidence* was found to be unrelated to all other constructs in the grid. After 18 months of intensive psychotherapy and behaviour therapy, there was no change in the severity of her symptom or in the construct relationships in the grid.

Fransella, F. & Adams, B. (1966) An illustration of the use of repertory grid technique in a clinical setting. *British Journal of Social and Clinical Psychology*, **5**, 51–62.

Following on from the study by Bannister, the results from this study showed that a man who has committed a number of acts of arson did not

in fact see himself as an 'arsonist' in terms of his own view of his motives and purposes. He was more the sort of person who punished wrong-doers, and was certainly not setting fire to things because he derived sexual pleasure from this – as psychiatric opinion suggested. Such a finding suggests why the man would not necessarily feel remorse or consider himself in need of treatment, whatever the view of those around him.

Fransella, F. (1968) Self-concepts and the stutterer. *British Journal of Psychiatry*, **114**, 1531–1535.

Construing of being 'a stutterer' was significantly different from being 'me' for both stutterers and non-stutterers, supporting the findings with regard to the arsonist in the above study by Fransella and Adams. The relevance of this self-vs.-behaviour dichotomy was discussed in terms of change.

Hoy, R.M. (1973) The meaning of alcoholism for alcoholics: a repertory grid study. *British Journal of Social and Clinical Psychology*, **12**, 98–99.

This study was conducted with 14 men in an alcoholic addiction unit. Photographs of men of similar age were used as elements, and constructs relevant to alcoholism were supplied. The study group viewed 'alcoholics' as *weak*, *sexually frustrated* and *lonely*, and did not see themselves in those terms.

Fransella, F. (1977) The self and the stereotype. In D. Bannister (Ed.), *New Perspectives in Personal Construct Theory*. London: Academic Press.

This study plotted the changes on five occasions in the self–stutterer relationship using implications grids during a treatment programme. It was argued that when a stereotype is well established and takes precedence over the 'self', any change programme needs to focus on building up the 'self', in this case focusing on 'me as a fluent speaker', and pay no attention to 'me as a stutterer'.

Ballantine, J. (1981) Acceptance of deafness in dealing with adolescents: a repertory grid study. *South African Journal of Communication Disorders*, **28**, 53–58.

In this study, 27 moderately to profoundly deaf adolescents saw themselves neither as 'deaf' nor as a 'hearing' person. In fact, as with the arsonist and the alcoholics, these young people viewed deaf individuals negatively but had good feelings about themselves.

Fransella, F. (1982) Personal meanings and personal constructs. In E. Shepherd & J.P. Watson (Eds), *Personal Meanings*. Chichester: John Wiley & Sons.

Examples are given from bipolar implication grid data to demonstrate, among other things, the hierarchical nature of construing links. These are related to Polanyi's idea of tacit knowing (Polanyi, 1969). It is argued that grids such as these can provide insight into construing that is occurring at a non-verbal level.

Beail, N. (1985b) Using repertory grid technique with severely physically disabled people. In N. Beail (Ed.), *Repertory Grid Technique and Personal Constructs: Applications in Clinical and Educational Settings*. London: Croom Helm.

Beail expressed surprise at how little work has been done with people with disabilities, and sought to stimulate interest in this area. He administered grids to 30 people who varied with regard to their disabilities and age, in order to look at their self-images and test Fransella's (1977) proposal that we are unlikely to embrace the stereotype of *us* if it is evaluatively *bad*. The elements were different 'selves' plus the stereotype of 'how the public see the disabled'. Because of the ease with which some of the people became tired, he decided to supply the constructs in this preliminary piece of research. In all cases but one, the stereotype was rated more negatively than the 'self'.

Weiss, P.A., Watson, N. & McGuire, H. (2003) Smoking and self-concept in young adults: an idiographic method of assessment. *Journal of Constructivist Psychology*, **16**, 4.

In this study, 18 constructs were elicited from 'smoker' elements and 18 from 'non-smoker' elements. They were then rated 'real self', 'ideal self', 'social self' (as others of your age see you) and 'ideal social self'. A basic finding was that smokers endorsed 'smoker characteristics' significantly more than did non-smokers, and vice versa for non-smokers. In this study, the stereotypes of 'smoker' and 'non-smoker' were not used as elements.

## Nursing

### *General Coverage*

This is an area in which personal construct psychology and grid methods are increasingly being seen as having a great deal to offer in increasing our understanding of the nursing process. A general overview of this work can be found in the following:

Costigan, J., Ellis, J.M. & Watkinson, J. (2003) Nursing. In F. Fransella (Ed.), *International Handbook of Personal Construct Psychology*. Chichester: John Wiley & Sons.

### *Specific References*

Clinton, M., Moyle, W., Weir, D. & Edwards, H. (1995) Perceptions of stressors and reported coping strategies in nurses caring for residents with Alzheimer's disease in a dementia unit. *Australian and New Zealand Journal of Mental Health Nursing*, **4**, 5–13.

The main stressors were found to be the residents' behaviours, lack of time to do the job properly, and the work itself. Both adaptive and maladaptive behaviours were identified.

Ellis, J.M. (1996) He was big and old and frightening: nursing students' constructs of older people. In B.M. Walker, J. Costigan, L.L. Viney & B. Warren (Eds), *Personal Construct Theory: a Psychology for the Future*. Melbourne: Australian Psychological Society.

The title says it all. Ellis states that there are indications that nurses' views of the elderly relate to their childhood experiences of them.

Laubach, W., Brown, C.E. & Lenard, J.M. (1996) Nurses and physicians evaluate their intensive care experiences. *Heart and Lung: the Journal of Acute and Critical Care*, **25**, 475–482.

These authors used situations as elements and studied the experiences of intensive-care nurses.

Mazhindu, G.N. & Pope, M.L. (1996) Inter-professional education in nursing. In J.W. Scheer & A. Catina (Eds), *Empirical Constructivism in Europe: the Personal Construct Approach*. Giessen: Psychosozial-Verlag.

Nurse lecturers, practitioners and students completed grids in which constructs were elicited from each person. The constructs were then analyzed according to content. Some differences were found between students' construing and between lecturers and practitioners.

Thorne, T. & Mullarkey, S. (1997) The use of the repertory grid in nursing research. To provide or elicit the constructs: the debate. In P. Denicolo & M. Pope (Eds), *Sharing Understanding and Practice*. Farnborough: European Personal Construct Association Publications.

These authors are aware that some in the nursing profession believe that supplied constructs should never be used in research employing repertory grids. They argue that to be so rigid has serious implications for nursing research, when it is sometimes essential to use supplied constructs. They ask for guidelines on when one should and should not use supplied constructs. This question of supplied vs. provided constructs is discussed in depth in Chapter 2.

Howkins, E. & Ewens, A. (1997) Community nurses' perceptions of self in role. In P. Denicolo & M. Pope (Eds), *Sharing Understanding and Practice*. Farnborough: European Personal Construct Association Publications.

These authors were interested in the development of the role of 'nurse' during training. They concluded that the training course plays a major role in the development of both self and role.

Wills, W. & Woods, B. (1997) Developing a specialist nursing service for family-caregivers of people with dementia: dilemmas of role expectation, perceived dependency and control. In P. Denicolo & M. Pope (Eds), *Sharing Understanding and Practice*. Farnborough: European Personal Construct Association Publications.

This is a preliminary report on some action research in a service for people with dementia. Using a dyad grid, the authors looked at perceived relationships between professional 'helpers' and their clients, who are also seen as 'helpers'.

## WORKING WITH CHILDREN

There is no particular age restriction on the populations with which repertory grid technique can be used. If the elements and constructs are appropriate, even very young children can complete a grid simply by making the kinds of judgement which characterize their everyday choices.

### *General Coverage*

There are many issues relating to the use of grids with children. One of them is concerned with the choice of elements. As we have said before, elements must be within the range of convenience of the constructs. Having said that, the choice is determined by the reason for the investigation. Elements do not have to be people. As was discussed in Chapter 2, Ravenette (1999b, 2003) used pictures depicting situations in which a child is alone, with other children, with members of the family, and so on. Humphris used polaroid photographs of the child (*see* Chapter 2, pages 35–36). Some children find these methods easier than having the names of people as elements. However, the names of people are also widely used in work with children.

We would suggest that you look at some of the general references given below to explore the various ways that have been suggested for making the grid task easy for children.

The following two books are on personal construct psychology and its methods in relation to working with children:

Butler, R.J. & Green, D. (1998) *The Child Within: the Exploration of Personal Construct Theory with Young People*. Oxford: Butterworth-Heinemann.

Ravenette, A.T. (1999b) *Personal Construct Theory in Educational Psychology: a Practitioner's View*. London: Whurr Publications.

### *Specific References*

Salmon, P. (1969) Differential conforming of the developmental process. *British Journal of Social and Clinical Psychology*, **8**, 22–31.

This paper describes an extensive experiment using grid methods with children around 8 years of age, studying the development of conformity. Salmon showed that, in grid terms, if we use constructs such as 'ideal self' and 'actual self' as a measure of value identification, then there is a significant relationship between 'ideal self' and the construct *tough* predicting peer conformity and 'ideal self' and the construct *obedient* predicting conformity with adult values.

Reker, G.T. (1974) Interpersonal conceptual structures of emotionally disturbed and normal boys. *Journal of Abnormal Psychology*, **83**, 380–386.

In this study, 24 disturbed and 24 normal boys with a mean age of 10.5 years were asked to construe 12 people known personally to them and 12 familiar inanimate objects on two sets of 12 bipolar constructs. They were also asked to arrange the people and the objects into personally meaningful groups. There was significantly lower differentiation and articulation (but not integrated in the interpersonal conceptual structure) of disturbed boys compared with the other boys. No differences were found in construing inanimate objects. The results were interpreted as indicating that disturbed boys were handicapped by a limited interpersonal conceptual structure for anticipating and predicting their social environment.

Ravenette, A.T. (1975) Grid techniques for children. *Journal of Child Psychology and Psychiatry*, **16**, 79–83.

In this paper, Ravenette outlines his early use of grids with children and describes his 'hand analysis' using the McQuitty Hierarchical Linkage Analysis.

Applebee, A.N. (1975) Developmental changes in consensus in construing within a specified domain. *British Journal of Psychology*, **66**, 473–480.

Applebee, A.N. (1976) The development of children's responses to repertory grids. *British Journal of Social and Clinical Psychology*, **15**, 101–102.

These two papers report the use of grids with children of ages ranging from 6 to 17 years. The results showed that there is increasing consensus in construing across the age span. The consensus was substantially higher for the pattern of interrelationships between constructs (the *structure* of the system) than for the ratings of specific elements on specific constructs (the *implications* of the system). Applebee also showed that there is a somewhat more equal elaboration of both poles of each construct (less lopsidedness) with increasing age, and that there is a recognition of more 'shades of grey'. Little (1968a) also showed that there were marked evolutionary changes in child to adolescent construing.

Salmon, P. (1976) Grid measures with child subjects. In P. Slater (Ed.), *The Measurement of Intrapersonal Space by Grid Technique. Volume 1. Explorations of Intrapersonal Space*. London: John Wiley & Sons.

This chapter provides a wealth of information on using grids with children, covering many of the subgroups listed below. One of the problems that has emerged over the years and which Salmon addresses is that of deciding what elements would be most useful in grids for different groups of children and for different ages. For instance, Salmon suggests the use of brightly coloured stand-up models of people of both sexes and various ages, wearing different types of clothing, and so on. The constructs are first elicited by encouraging the child to talk about them. The child then looks at the first model in terms of the first construct and is asked 'Is he a . . . person or is he a . . . (opposite pole) person?'. This

procedure is repeated until all of the elements have been placed at one pole or the other on all constructs.

Rating methods appear to be comparatively easy for children. Salmon suggests that children over 6 years of age can usually manage this task. The categories for rating should be defined by such words as 'very', 'a little bit', and so on, rather than by numbers. Salmon also suggests that the number of ratings should be limited to five or even three for those under 12 years of age. A more physical approach to rating is often preferable to a verbal one, especially for younger children. For example, the elements can be placed into three or five piles, be marked to indicate the two poles of a construct, and the child asked to place the elements between these two as for ranking.

Lifshitz, M. (1976) Long-range effects of father's loss: the cognitive complexity of bereaved children and their school adjustment. *British Journal of Medical Psychology*, **49**, 189–197.

Using a measure of cognitive complexity, interviewing and classroom observation, this study demonstrated that fatherless children showed a tightening of diverse psychological indices. The smaller the perceived difference between self and parents, the more changeable and restless their behaviour appeared to be.

Ravenette, A.T. (1977) Personal construct theory: an approach to the psychological investigation of children and young people. In D. Bannister (Ed.), *New Perspectives in Personal Construct Theory*. London: Academic Press.

The use of grids with children, together with examples, is discussed in relation to personal construct theory.

Honess, T. (1979) Children's implicit theories of their peers: a developmental analysis. *British Journal of Psychology*, **70**, 417–424.

In this study, the implications grid (*see* pages 65–76) was used with 203 children at four age levels. Each of the youngest children was asked to imagine that there was a new child coming to the school the following week of the same age as himself. All he knew about this child was that he (for instance) liked doing gym. A card with '*likes doing gym*' written on it was placed on the table and another construct pole card was placed before the child with, say, *bully* written on it. 'Remember, the only one thing we know about the new boy is that he likes doing gym. Do you think he will be a bully?'. If the child indicated that he did think so, he was told to put the *bully* card by the card with *Yes* on it. There were two other alternatives open to the child, namely to put the *bully* card in a *May* or *May not* pile or a *Very unlikely* pile. The procedure was repeated with all of the construct cards. Honess had found in a pilot study that this method produced meaningful results with children as young as 6 to 7 years.

Strachan, A. & Jones, D. (1982) Changes in identification during adolescence: a personal construct theory approach. *Journal of Personality Assessment*, **46**, 529–535.

Four boys and four girls in each of three age groups ranging from 12 years to 17 years 9 months named 10 people to fit role titles including 'myself as I am' and 'myself as I would like to be'. Constructs were individually elicited and rank grids were administered individually. The mid-adolescent group had greater distances between self and ideal-self than either of the other two groups. There was also decreasing identification with parents as a function of age.

Honess, T. (1985). Repertory grids and the psychological case study. In N. Beail (Ed.), *Repertory Grid Technique and Personal Constructs*. Beckenham: Croom Helm.

Honess presents three projects to illustrate that grids are not simply 'a means to an end', but are better seen as a starting point of further inquiry in the educational context.

Butler, R.J. (1985) Towards an understanding of childhood difficulties. In N. Beail (Ed.), *Repertory Grid Technique and Personal Constructs*. Beckenham: Croom Helm.

Details are given of the range of possibilities available before decisions are taken at each stage of the grid creation. Then analyses are described showing how the process has helped to increase our understanding of some children's difficulties.

Jackson, S.R. & Bannister, D. (1985) Growing into self. In D. Bannister (Ed.), *Issues and Approaches in Personal Construct Theory*. London: Academic Press.

One of the issues examined in this very extensive study was a comparison between 8 children who were viewed as problematic by teachers and as *hard to understand* by their peers, but who saw themselves as *easy to understand* (self-confident group), and a second group who were seen as equally *hard to understand* by teachers and peers and who also saw themselves as *hard to understand*. The self-confident group showed more integration in their grids than did the unsure group.

Monaghan, L. & Monaghan, R. (1985) Wondering constructions of learning: lateral and vertical styles in children. In F. Epting & A.W. Landfield (Eds), *Anticipating Personal Construct Psychology*. Lincoln, NE: University of Nebraska Press.

The aim of this study was to explore the personal meanings of children's questions. The age range of the 22 children who completed ranked grids was from 8 to 11 years. The elements were unusual in that they were questions such as 'Are there creatures on other planets?', and 'What is fire?'. There were seven constructs plus *like I am* vs. *not like I am* and *like I'd like to be* vs. *like I'd not like to be*. The children were provided with grid forms and the elements, and administered the grid to themselves. The children differed in a number of ways (e.g. children who seek the safety of the familiar and fear the unknown compared with those who like to wonder and question and find that exciting and enjoy risk taking).

Phillips, E.M. (1985) Using the repertory grid in the classroom. In N. Beail (Ed.), *Repertory Grid Technique and Personal Constructs: Applications in Clinical and Educational Settings*. London: Croom Helm.

The main purpose of this study was to teach teachers to use repertory grids with their pupils.

Edwards, A. (1988) A child of four could tell you: a study of identity in the nursery school using situations grids. In F. Fransella & L. Thomas (Eds), *Experimenting with Personal Construct Psychology*. London: Routledge & Kegan Paul.

Two situations' grids were tested out – one relating to school (e.g. 'painting', 'dressing up') and the other being more global (e.g. 'school', 'home'). No problems were experienced when the grid was administered in a play situation with 'Yes'/'No' answers.

## TEACHERS AND TEACHING

Just as it seems to be possible to investigate the ways in which construing develops in children, grids can be used to investigate the learning process.

### *General Coverage*

The following books and chapters are of relevance:

Pope, M. & Denicolo, P. (2001) *Transformative Education: Personal Construct Approach to Practice and Research*. London: Whurr Publications.

This provides a comprehensive discussion of the ways in which Kelly's ideas have been used within education.

Salmon, P. & Clare, H. (1984) *Classroom Collaboration*. London: Routledge & Kegan Paul.

This describes ways in which personal construct psychology changes teachers' views of their role and how they relate to children.

Thomas, L. & Harri-Augstein, S. (1985) *Self-Organised Learning: Foundations of a Conversational Science of Psychology*. London: Routledge and Kegan Paul.

These authors describe their theory and the various technologies that they have invented to explore the world of learning in adults.

Salmon, P. (2003) A psychology for teachers. In F. Fransella (Ed.), *International Handbook of Personal Construct Psychology*. Chichester: John Wiley & Sons.

This chapter discusses the current educational philosophy and how it differs from that offered by personal construct theory. Salmon describes ways in which the repertory grid has been found useful and discusses what some of the alternative measures might be.

Yorke, D.M. (1978) Repertory grids in educational research: some methodological considerations. *British Educational Research Journal*, **4**, 63–74.

This is an interesting paper which outlines the concerns Yorke had more than 25 years ago. One reason for it being of interest is that it refers to many of the issues that have been the subject of grid research since that time, and which are covered in previous chapters in this book, such as the nature of the elements selected, whether using the 'difference' as opposed to the 'opposite' method of elicitation makes a difference, the context in which the elements are to be construed, the issue of lopsidedness of ratings, and much else besides.

*Specific References*

Runkel, P.J. & Damrin, D.E. (1961) Effects of training and anxiety upon teachers' preference information about students. *Journal of Educational Psychology*, **53**, 254–261.

These authors conducted one of the earliest studies with adult students. Their hypothesis was that there would be a U-shaped curvilinear relationship between training and the cognitive complexity of the teachers' understanding of students' problems. The hypothesis was confirmed by this study. Complexity was measured by the unfolding technique of Coombs (1964), which is essentially a grid format.

Ryle, A. & Breen, D. (1974a) Change in the course of social-work training: a repertory grid study. *British Journal of Medical Psychology*, **47**, 139–147.

Grids with self–client and self–supervisor relationships as elements were given to social work students in training. In most cases individual change, as recorded in grid retests, was in a direction indicating at least partial resolution of problems. The study of many of the individual grids highlighted the importance of the tutor–student and supervisor–student relationships as models for the student–client relationship. Less predictably, the grids also demonstrated that the student–client relationship echoed the student–parent relationship. The role of supportive son or daughter may be a common antecedent to the career choice of a 'helping' profession, but this must generate certain difficulties. The fact that the relationships between self and parents were among those showing much reconstruction during the course suggests that these problems were being faced.

Ryle, A. & Breen, D. (1974b) Social-work tutors' judgement of their students. *British Journal of Medical Psychology*, **74**, 149–152.

This study was a follow-up of the previous one, in which 14 of the students were supervised by three tutors. The 14 students were the elements in a ratings grid, and 20 constructs were supplied to the three tutors. The level of inter-tutor agreement about the students was high (rank-order correlations of 0.88, 0.91 and 0.96). One of the findings was that the poorly evaluated students were seen to change less and to have persistent problems. Thus it seems that early identification of problems did not lead to help being given with working through those problems.

Lifshitz, M. (1974) Quality professionals: does training make a difference? A personal construct theory study of the issue. *British Journal of Social and Clinical Psychology*, **13**, 183–189.

Lifshitz studied the changes that take place in the outlook of social work students compared with their older and more experienced supervisors during training. Significant differences were found between the two groups. In particular, student groups tended to use much more concrete descriptive categories (e.g. age, sex and profession) in construing their clients compared with the more abstract constructs used by the experienced professionals.

Boei, F., Corporaal, A. & Wim, H. (1989) Describing teacher cognitions with the rep grid. In J. Lowyck & C.M. Clark (Eds), *Teacher Thinking and Professional Action*. Leuven: Leuven University Press.

These authors used repertory grids to study student teachers' construing about 'good' teaching. They elicited student teachers' ideas by conducting open-ended interviews. These became elements relating to teacher behaviour, such as 'the teacher pays attention to individual children'. In addition, 'I as a teacher' and 'I as an ideal teacher' were provided. Common constructs used by student teachers formed the grid. One major difference between 'I as a teacher' and 'I as an ideal teacher' was in terms of the construct *professional activities inside class/school–professional activities outside class/school*. Boei and his colleagues suggest that: 'this points to a rather narrow perception of the professional teaching role' (p.189), and that outside activities should be considered within teacher training to avoid teaching being separated from its ethical, political and social dimensions.

Watts, M. & Vaz, A. (1997) Freire meets Vaz: using constructs to generate themes in education. In P.M. Denicolo & M.L. Pope (Eds), *Sharing, Understanding and Practice*. Farnborough: European Personal Construct Association Publications.

In this study, teachers were asked to write down events that were related to particular emotions. Some events had prompted positive feelings, while others prompted episodes associated with negative feelings. They then selected nine episodes, which became the elements in a repertory grid. Constructs were elicited from triads of these situations. The results were discussed individually with each student teacher, and they were encouraged to justify their personal constructs during these discussions.

One example of the many themes which emerged during the course of the conversations concerned the teachers' need to exercise 'didactic restraint, to organize their classrooms for what became known as ''hands-off teaching for hands-off learning'' '. The teachers in this study showed clear recognition of the importance of the child constructing their knowledge.

Fromm, M. (2003) Learning and the diagnosis of learning results. In F. Fransella (Ed.), *International Handbook of Personal Construct Psychology*. Chichester: John Wiley & Sons.

Research was conducted to determine what it was that university students had actually learned at the end of a course. It was found that they do not always learn what teachers think they do.

## THE CONSTRUING OF PROFESSIONALS

As can be seen, there is overlap between this section and the previous one.

De Bernadi, B. (1996) How teachers construe pupils' intelligence. In D. Kalekin-Fishman & B.M. Walker (Eds), *The Construction of Group Realities: Culture, Society and Personal Construct Theory*. Malabar, FL: Krieger.

The aim was to ascertain how teachers of nursery, primary and middle schools in Italy at different levels and in different teaching areas construed high intelligence and lack of intelligence. In the first study the self-characterization was used. In the second study, repertory grids were used. Constructs and elements were supplied from among those derived from the self-characterizations in the first study. One of the many findings was that teachers construed verbal and cognitive abilities as characteristic of the very intelligent pupils, who were also seen to have greater social awareness and involvement than those who were not so intelligent. The author highlights the importance of having teachers' 'implicit' theories of intelligence made explicit.

Tooth, B. (1996) Group construing: the impact of professional training. In D. Kalekin-Fishman & B.M. Walker (Eds), *The Construction of Group Realities: Culture, Society and Personal Construct Theory*. Malabar, FL: Krieger.

This is a study of how mental health professionals construe their work with clients. Psychologists, psychiatrists and nurses completed the Working with Clients Grid. This used supplied elements but individuals' elicited constructs. Overall, psychologists and psychiatrists differed significantly, with nurses coming somewhere between the two in their construing. A further analysis was undertaken in which the seven most similar individuals in each group were put together to form a 'multi-disciplinary team'. Here the commonality between the original professional groups was 53%, and was raised to 78% for the 'team' group.

Gale, M. & Mullineux, J. (2000) Assessment and decision-making: probation officers' construing of factors relevant to risk. *Legal and Criminological Psychology*, **5**, 165–185.

In this study, 16 probation officers completed grids in the first stage of the research which aimed to determine what factors were used in the assessment of offenders. These were analyzed using INGRID, and 14

constructs were identified as being common to all. A standardized grid was compiled and administered to 33 practitioners in the second stage of the research. The results indicated that recommendations were based almost exclusively on the severity and length of the offender's criminal record.

## THOSE WITH LEARNING DIFFICULTIES

### *General Coverage*

Early on there was surprisingly little research undertaken in this field, but this was made up for by the insightful and comprehensive work reported by Barton, Walton and Rowe.

Barton, E.S., Walton, T. & Rowe, D. (1976) Using grid technique with the mentally handicapped. In P. Slater (Ed.), *The Measurement of Intrapersonal Space by Grid Technique. Volume 1. Explorations of Intrapersonal Space*. London: John Wiley & Sons

These authors wanted to find out if it was possible to use grids with people who have learning difficulties. They found that it was very possible.

The authors provide a wealth of useful information about the ways in which they dealt with some of the difficulties that they faced. For instance, they had no problem in administering a grid to people with learning difficulties with IQs down to 50, so long as the person could read. They point out that many individuals who do not score on a formal reading test can recognize names when these are printed in large capital letters, especially if they are supplemented by symbols or drawings. If no letters can be recognized, then drawings or non-verbal symbols alone can be used. The authors found that people with the lower IQ levels could manage to deal with at least 8 or 9 elements.

Barton and her colleagues apparently often found that it was difficult for their 26 subjects to grasp the fact that there was no 'right answer'. Most could rank using the general method described earlier. However, one event that can disrupt the procedure, which was reported with all types of people on occasion, is when the person says that none of the remaining elements is, say, *snobbish* . The way round this problem is to start the ranking from the other pole and ask among the remaining elements – who is *least snobbish* or who is definitely *not snobbish*. They also suggest that for people with learning difficulties, tied ranks should be allowed. Another problem reported in this study was when subjects refused to rank staff members on 'bad' constructs. They needed reassurance that staff would not be told about this. One suspects that this is a common difficulty with all those who spend a long time in institutions. It could be,

of course, that staff are no longer construed as people and so cannot be 'bad', and consequently range of convenience has become a problem.

When some insuperable difficulty is experienced with ranking elements, Barton and colleagues suggest using the paired-comparison method adopted by Orley (1976) in his study of the way in which Ganda villagers viewed six classes of spirits. With 6 elements, there are 15 possible pairs. Each of these 15 pairs was presented to the Ganda villagers, who were asked which member of the pair was best described by the construct. When all 15 elements had been presented and compared on one construct, the examiner went on to the next construct. A score of 'I' was given for the spirit chosen on each pairing. Barton and colleagues also suggest a means of overcoming the difficulty experienced by some people in using the 'ideal self' as an element. When all elements have been ranked, the person is asked whether 'you would really like to be more or less *kind* than 'X', starting at the median rank. In this way the correct rank placement or rating for the element can be found on each construct.

There are two other sources which discuss the application of personal construct psychology to working with people with learning difficulties:

Davis, H. & Cunningham, C. (1985) Mental handicap: people in context. In E. Button (Ed.), *Personal Construct Theory and Mental Health*. London: Croom Helm.

This chapter provides a useful overview of theoretical frameworks and studies using repertory grids up to the mid-1980s.

McConachie, H. (1985) How parents of young mentally handicapped children construe their role. In D. Bannister (Ed.), *Issues and Approaches in Personal Construct Theory*. London: Academic Press.

As its title states, this chapter is for parents of children with learning difficulties.

Other reported work is listed below, including at the end of the list a paper describing the use of grids with a group that has not been worked with before, namely people with Asperger syndrome.

### *Specific References*

Wooster, A.D. (1970) Formation of stable and discrete concepts of personality by normal and mentally retarded boys. *British Journal of Mental Subnormality*, **16**, 24–28.

In this study, the elements were photographs of unknown boys, which were ranked on constructs that were supplied, including the self and ideal self. As predicted, the mentally unstable boys had less stable self-perceptions and these were less related to all other constructs compared with boys of 'normal' ability.

Middleton, J. (1985) So where does this leave Simon? A mother's and a teacher's perspective of an ESN (M) boy. In N. Beail (Ed.), *Repertory Grid Technique and Personal Constructs: Applications in Clinical and Educational Settings*. London: Croom Helm.

This repertory grid study showed that his mother and his teacher saw Simon in different ways. It is suggested that for a child such as Simon to be helped to develop his capabilities, the mother and the teacher need to look at their grid results and try to come to some agreement about the child.

Vicary, S. (1985) Developments in mothers' construing of their mentally handicapped one-year-olds. In N. Beail (Ed.), *Repertory Grid Technique and Personal Constructs: Applications in Clinical and Educational Settings*. London: Croom Helm.

In this study, 10 mothers of 1-year-old children with learning difficulties completed individual grids with 8 or 10 constructs and elements of family and other children, including the handicapped child as he or she would have been without the handicapping condition. The grids were completed at 3-monthly intervals over a period of 1 year. For the group as a whole, the handicapped child and the imagined child were perceived as more alike than the handicapped child was perceived to be compared with any other element. However, there was considerable variation, with 'discrepant' mothers differing from the less discrepant mothers on a number of measures.

Hare, D.J. (1997) Use of repertory grid techniques in working with people with learning disabilities. *Journal of Learning Disabilities for Nursing, Health and Social Care*, **3**, 115–119.

Hare starts by saying that personal construct psychology has had very little impact on work with people with learning difficulties to date, despite the recognition of its potential. He presents a grid that was used with a woman in her late forties who lived with three other people with learning difficulties. The elements were photographs of the three other residents plus members of the staff group. Constructs were elicited from pairs of these as well as using Ravenette's 'portrait gallery' (Ravenette, 2003). That involves, for instance, showing the person two faces depicting a 'sad' and a 'happy' person and asking what might make that face happy or sad. The grid was completed by ranking the elements on each construct in turn.

Hare, D.J., Jones, P.R. & Paine, C. (1999) Approaching reality: the use of personal construct assessment in working with people with Asperger syndrome. *Autism*, **3**, 165–176.

This paper describes how the authors elicited personal constructs and administered grids to four individuals with Asperger syndrome. They found that their approach worked well with this group of people, and they discuss its advantages and disadvantages.

## SOCIAL RELATIONSHIPS

The Sociality Corollary of personal construct theory states that 'to the extent that one person construes the construction processes of another he may play a role in a social process involving the other person'. Clearly it is vital that grid technique enables us to construe the construction processes of others who are themselves construing the construction processes of yet others. The general area of acquaintanceship, relationship, friendship and mutual understanding has been considered in many contexts. Once again, there has been far too much research carried out for us to cite all of the studies. We have divided this section into subsections, but first we list a few general references.

### *General Coverage*

The following two edited books and the journal paper cover a wide range of topics as well as a survey of work on grids.

Kalekin-Fishman, D. & Walker, B. (Eds), (1996) *The Construction of Group Realities: Culture, Society and Personal Construct Psychology*. Malabar, FL: Krieger.

Stringer, P. & Bannister, D. (Eds) (1979) *Constructs of Sociality and Individuality*. London: Academic Press.

Neimeyer, G.J. & Neimeyer, R.A. (1985) Relational trajectories: a personal construct contribution. *Journal of Social and Personal Relationships*, **2**, 325–349.
Although this paper does not itself report research using grids, it does provide a very useful review of the work using grids that was carried out up to 1985.

### Viewing Each Other

*Specific References*

Bender, M.P. (1969) To smile at or avert the eyes from: the formation of relationships among students. *Research in Education*, **2**, 32–51.
Using implications and resistance-to-change grids, construing of others was investigated in terms of core and peripheral constructs. Ten hypotheses were tested, derived from the idea that personal identity needs confirmation by others and our construing of strangers is determined by whether or not we decide that they are likely to confirm our identity if we interact with them further. These hypotheses were generally supported.

Adams-Webber, J.R., Schwenker, B. & Barbeau, D. (1972) Personal constructs and the perception of individual differences. *Canadian Journal of Behavioural Science*, **4**, 218–224.
Grids were used to investigate the hypothesis that skill in inferring the personal constructs of others is related to the level of differentiation

achieved by an individual in structuring his social environment in terms of his own construct system. It was found that if subjects characterized close personal associates in a way that was consistent with the structure of their own self-concepts, they were less accurate in discriminating between the two new acquaintances in terms of the previously elicited personal constructs of the latter. On the other hand, subjects who differentiated between themselves and close associates on the grid performed such discriminations more accurately.

Benjafield, J. & Adams-Webber, J.R. (1975) Assimilative projection and construct balance in the repertory grid. *British Journal of Psychology*, **66**, 169–173.

The relationship between the degree to which people see others as like themselves (assimilative projection) and the frequency with which they use positive adjectives to describe people was examined in the context of changing role perspectives. The assimilative projection scores of those people who use a preponderance of positive over negative adjectives were found to be influenced by changes in role perspectives. By contrast, the assimilative projection scores of those individuals whose use of adjectives was less 'maldistributed' or lopsided were stable across roles. The results were viewed as having implications for repertory grid methodology, specifically for the practice of controlling for maldistribution.

Adams-Webber, J. (1985) Construing self and others. In F. Epting & A.W. Landfield (Eds), *Anticipating Personal Construct Psychology*. Lincoln, NE: University of Nebraska Press.

As was mentioned in Chapter 2, Jack Adams-Webber and his colleagues have conducted a considerable amount of research over the years on how construing of 'the self' relates to construing of 'others', and also how we tend to rate 'others' on the same poles of constructs as ourselves about two-thirds of the time. This came to be called the *Golden Section hypothesis*, and research relating to it is discussed in Chapters 3 and 5.

Adams-Webber, J.R. (1998) Differentiation and sociality in terms of elicited and provided constructs. *Psychological Science*, **9**, 499–501.

Basically, this research showed that people are more accurate in inferring their partners' self-evaluations using their personally elicited constructs than on supplied constructs.

## Couples

### *General Coverage*

Here we are concerned with the application of grids to working with pairs of people. An early study of interpersonal perceptions was conducted by Drewery and Rae (1969) using the 'interpersonal perception technique' (IPT) that they created. Couples completed the IPT individually from three

perspectives, namely 'myself as I am', 'my spouse as I see him/her' and 'myself as I think my spouse sees me'.

Much of the early research on friendship and attraction was carried out by Steven Duck. The interested reader can consult the following two references:

Duck, S.W. (1977). Inquiry, hypothesis and the quest for validation: personal construct systems in the development of acquaintance. In S.W. Duck (Ed.), *Theory and Practice in Interpersonal Attraction*. London: Academic Press (also *The Study of Acquaintance*. Farnborough: Gower Press).

Duck, S.W. (1985) Attraction, acquaintance, filtering, and communication – but not necessarily in that order. In F. Epting & A.W. Landfield (Eds), *Anticipating Personal Construct Psychology*. Lincoln, NE: University of Nebraska Press.

This is a later source covering Duck's work and including his concept of 'filtering' which has generated further research on acquaintance. He also explains why he developed his work to look at how and why some relationships break down.

### *Specific References*

Bannister, D. & Bott, M. (1974) Evaluating the person. In P. Klein (Ed.), *New Approaches to Psychological Medicine*. London: John Wiley & Sons.

These authors followed up Drewery and Rae's IPT idea using a rankings grid. They elicited constructs from both husband and wife in a marriage counselling setting, and each partner completed their own grid. The two sets of constructs were then combined to form a 'duo' grid, which the couple completed together. By correlating the separate grids with the duo grid, it was possible to find out who was the dominant partner.

Bender, M.P. (1974b) Does construing people as similar involve similar behaviour towards them? A subjective and objective replication. *British Journal of Social and Clinical Psychology*, **15**, 93–95.

In this study, 15 couples who had lived together for at least 6 months completed a grid with elicited constructs. One partner was asked to think of interacting with three of the elements at a time and to indicate to which two people's behaviour his own behaviour was most similar. Each member of the couple then completed the grid in this manner but in terms of the partner's behaviour. There was a highly significant relationship between pairs of people eliciting more similar behaviour indicated by person and spouse, indicating some validity for these grid measures.

Ryle, A. & Lipshitz, M. (1975) Recording change in marital therapy with the reconstruction grid. *British Journal of Medical Psychology*, **48**, 39–48.

In this study, a married couple completed a dyad grid in which the elements were the relationship of husband to wife and wife to husband, rated in terms of 18 'behaviour' and 15 'feeling' constructs. Progressive

changes were shown on the 11 occasions of testing which preceded marital therapy sessions.

Wijesinghe, O.B.A. & Wood, R.R. (1976) A repertory grid study of interpersonal perception within a married couple. *British Journal of Medical Psychology*, **49**, 287–293.

These authors also studied married couples in a psychotherapy group. They did not use the duo or dyad grid, but simply asked each member of the couple to fill in the grid as they thought their partner would, but with the interesting addition that the therapist completed the rankings grids as he thought the particular spouse had ranked the elements.

An attempt was made to elucidate the dominant construct patterns within a group of four married couples who were having outpatient psychotherapy. A comparison was also made between the ability of a person to construe the construction processes of his or her spouse and the therapist's ability to construe the construction processes of that particular spouse. Constructs related to discussing problems, showing feelings and dominance were important for inter-group perceptions, but opinion was polarized with regard to the implications of these constructs for effective group functioning. There was a reasonably high level of agreement between husbands and wives on perception of similarity in construing processes as well as in areas of shared perception. The therapist was able to predict much more accurately than the spouses constructs relating to emotional expression. Of the four couples, three of the wives and only one of the husbands were more accurate than the therapist.

Rowe, D. & Slater, P. (1976) Studies of the psychiatrist's insight into the patient's inner world. In P. Slater (Ed.), *The Measurement of Intrapersonal Space by Grid Technique. Volume 1. Explorations of Intrapersonal Space*. London: John Wiley & Sons.

These studies have been used as examples of the application of multiple grids in Chapter 5. Two studies are reported which were designed to measure a psychiatrist's understanding of his patient. First, the psychiatrist was given the elements and constructs used by the patient and asked to fill in the grid as he supposed the patient had done. He showed a fair degree of insight, but underestimated the importance that the patient attached to *has knowledge and experience not in a book*.

In the second study, grids were completed by both the psychiatrist and the patient before and after 2 months of treatment using the same procedure as in the first study. The psychiatrist's understanding of his patient had improved, but again there were discrepancies which were clearly relevant to the therapy and not random deviations.

Neimeyer, R.A. & Neimeyer, G.J. (1983). Structural similarity in the acquaintance process. *Journal of Social and Clinical Psychology*, **1**, 146–154.

This was a study of 20 adults arrested for drunken driving who participated in a university-sponsored 'socialization group' at the

recommendation of the court. They were divided into two 'Interpersonal Transaction' (IT) groups (see Landfield, 1977), which met for weekly 2-hour sessions for 20 weeks. The authors were interested in structure of construing (cognitive complexity – FIC scores) and not in similarity of content. They report a process. Those in pairs with high similarity of structure showed greater mutual attraction than those with medium and low similarity after 18 weeks, but not after 4 weeks.

Neimeyer, G.J. & Neimeyer, R.A. (1986) Personal constructs in relationship deterioration: a longitudinal study. *Social Behavior and Personality*, **14**, 253–257.

Again using IT groups to acquaint strangers, these authors administered ratings grids in which each rated all of the other group members on their *own* personal constructs at weeks 4 and 18. Each pair's grids were compared for 'functional similarity' (a content measure), and the attractiveness of each group member to each of the others was computed. Those with deteriorating relationships had significantly lower functional similarity than those with strong relationships. It was also found that those with deteriorating relationships had lower functional similarity scores even at week 4 of testing.

Neimeyer, R.A. & Mitchell, K.A. (1988) Similarity and attraction: a longitudinal study. *Journal of Social and Personal Relationships*, **5**, 131–148.

These authors first provide a useful summary of the research on the development of personal relationships. They then describe their own research involving 82 students who were matched with a same-sex/same-race partner. Members of these pairs were instructed to spend at least 2 hours a week in each other's company. They completed several tests plus $10 \times 10$ ratings grids. Among the findings of the complex analyses was support for previous suggestions that those in 'developing relationships' were more similar in their attitudes than were those in deteriorating relationships.

Neimeyer, R.A., Brooks, D.L. & Baker, K.D. (1996) In D. Kalekin-Fishman & B.M. Walker (Eds), *The Construction of Group Realities: Culture, Society and Personal Construct Theory*. Malabar, FL: Krieger.

This provides specific discussion of the development of relationships over time.

Mendoza, S. (1985) The exchange grid. In N. Beail (Ed.), *Repertory Grid Technique and Personal Constructs: Applications in Clinical and Educational Settings*. London: Croom Helm.

This is probably the first study to use the term 'exchange grid'. Basically, a simple ratings or rankings grid is used with a set of elements that are common to each party but with constructs elicited from each member. Thus there are two grids with the same elements and different constructs. Each person completes his or her own grid. The grids are then swapped so that A completes B's grid, and vice versa.

Neimeyer, G.J. & Hudson, J.E. (1985) Couples' constructs: personal systems in marital satisfaction. In D. Bannister (Ed.), *Issues and Approaches in Personal Construct Theory*. London: Academic Press.

This time in the context of marital satisfaction, these authors studied 20 married couples who completed 'exchange grids' and also ranked their own constructs in importance in 'judging my close relationships'. Among many findings, the more satisfied spouses were, the better they were able to understand one another, especially on the more important constructs.

O'Loughlin, S. (1989) Use of repertory grids to assess understanding between partners in marital therapy. *International Journal of Personal Construct Psychology*, **2**, 143–147.

Using supplied elements and constructs, seven couples completed grids for themselves and how they thought their partners would complete it, in order to provide a measure of 'understanding'. The Marital Adjustment Test was completed to provide a measure of 'satisfaction'. Comparisons with other work are made, including validation of the findings of Willutzki and colleagues that men were more accurate in predicting their partners' construing than were women (Willutzki *et al.*, 1987).

Neckermann, S. & Felder, H. (1996) Qualities of constructs for pregnancy with regard to visual elements: individuality vs. stereotype. In J.W. Scheer & A. Catina (Eds), *Empirical Constructivism in Europe: the Personal Construct Approach*. Giessen: Psychosozial-Verlag.

Photographs of an embryo, a fetus and an ultrasound examination were used as elements. Different elements produced either individual or stereotypical constructs.

Nissim, R. (1996) What makes for successful fostering? Using repertory grids to answer this question. In R. Stoker & C. Walker (Eds), *Constructivist Approaches: Educational and Child Psychology 13*. Leicester: British Psychological Society.

Foster carers, social workers responsible for family placement and social workers responsible for children in need of family placement completed grids with 'placement' elements and elicited constructs.

## LANGUAGE

Linguistic meaning can be theoretically defined as the relationship between personal constructs, and it can be operationally defined in grid terms. An early study by Mair (1966) found that the relationship between constructs averaged from the subjects' grids and the relationship that would have been predicted between the verbal labels used in terms of dictionary meaning were closely associated – that is, synonyms were strongly positively related, antonyms were strongly negatively related, and so on. Equally noteworthy is the fact that the relationships for an *individual* between their constructs were not *precisely*

those which a dictionary would have predicted. This is an expected finding in that both common sense and construct theory (the Commonality Corollary) would predict that a substantial part of the relationship between our constructs reflects cultural teaching, but also that each of us develops idiosyncratic meanings (the Individuality Corollary) for words, derived from our unique personal experience. In the same year, a further study which was essentially linguistic in approach was that of Warren (1966), who tested out Bernstein's (1960) argument concerning class differences in linguistic coding. With regard to the strength of intercorrelations between constructs (Intensity), Warren found that his working-class population had more highly interrelated constructs than his middle-class group.

One of the puzzling gaps in the use of grids has in fact been in the area of psycholinguistics. Language is so dense and rich that it presents extreme problems for anyone attempting a systematic analysis. It is therefore strange that among the many studies in the formal field of psycholinguistics, virtually none have made use of what is clearly one of the most flexible forms of systematic attack on the nature of language, namely the repertory grid. Perhaps the reason for this is that people like psychologists suffer from what Kelly called 'the dread disease of hardening of the categories' and have seen the grid as a measure of, say, 'psychopathology' or 'personality', so have not recognized that it can be equally viewed as a tool for investigating language and symbolic processes. Similarly, they have ignored the degree to which personal construct theory could provide a framework for the study of 'language' which did not divorce it from 'behaviour' and 'perception'.

Two early studies that looked at different aspects of language are outlined below.

Agnew, J. & Bannister, D. (1973) Psychiatric diagnosis as a pseudo-specialist language. *British Journal of Medical Psychology*, **46**, 69–73.

These authors looked at language, in grid terms, in the specific area of the language used by psychiatrists to classify patients. In this study, psychiatrists completed grids using their patients as elements and using both formal diagnostic categories and lay descriptive terms as constructs. Analysis of the grids enabled the authors to show that psychiatric diagnosis is only a pseudo-specialist language, that it is no more stable and has no greater inter-judge agreement than everyday language, and in addition that it is heavily contaminated by lay language. The significant feature of the experimental design is that it could be used in any study of the degree to which a particular technical or specialist language is an effective, stable and separate subsystem.

Lemon, N. (1975) Linguistic development and conceptualisation: a bilingual study. *Journal of Cross-Cultural Psychology*, **6**, 173–188.

A ratings form of grid was used to investigate the effect of development in a weaker language on conceptualization in that language. Form 2 and

Form 4 secondary-school children in Tanzania were administered grids with elements consisting of either people or countries in both English and Swahili. Comparison of English and Swahili grids showed that language deficit reduces the polarization of judgements that are made using constructs articulated in the weaker language, although no differences in construct relationships were observed. Differences in integration of construct relationships and polarization of judgement appeared to relate to the social appropriateness of each language for conceptualizing the elements in question. The implications of these results for the relationship between language and conceptualization are discussed.

Language in specific contexts will now be considered.

## Language, Construing and the Deaf

The work of Baillie-Grohman has already been discussed in detail in Chapter 2 and earlier in this chapter. Other relevant pieces of work are listed below.

### *Specific References*

Gordon, A. (1977) Thinking with restricted language. A personal construct investigation of prelingually profoundly deaf apprentices. *British Journal of Psychology*, **8**, 253–255.

It is argued that even the profoundly deaf have some command of language. Elements were cartoon drawings such as 'you', 'dad' and 'boy I like', and the constructs of single-word adjectives were supplied and communicated by sign. The same grids were given to eight male nurses. Taking the percentage variance accounted for by the first component on the analysis, the profoundly deaf group had slightly more variance accounted for than did the hearing group – which is the opposite to the predicted result. Gordon comments that, as others have said, what is remarkable is the degree of overlap in cognitive measures that is often found between the profoundly deaf and hearing groups.

MacDonald, P.J. (1980) Is personal construct theory useful in studying the hearing-impaired? *Journal of the British Association of Teachers of the Deaf*, **6**, 161–167.

The construing of hearing-impaired adolescents was compared with that of adolescents and adults with normal hearing. There were problems with results using the first-component variance. However, an interesting finding was that there was an absence of abstract constructs with the hearing-impaired group. Their constructs were more concerned with the ways in which people behaved towards them.

Ballantine, J. (1981) Acceptance of deafness in deaf adolescents: a repertory grid study. *South African Journal of Communication Disorders*, **28**, 53–58.
Photographs of adolescents served as elements and were used to elicit eight personal constructs plus 'as I am' and 'as a deaf person is'. The elements were ranked in order on each personal construct. There was an overall tendency for 'as I am' to be seen in positive terms and 'as a deaf person' is to be seen in negative terms. However, the majority had low correlations between 'as I am' and 'as a deaf person is' – they saw themselves as similar to neither one nor the other. In the author's view, this finding has implications for the integration of deaf people into the hearing world on leaving school.

## Language, Construing and Speech

### *General Coverage*

One book that gives general coverage of communication is Peggy Dalton's (1994) *Counselling People with Communication Problems* (London: Sage Publications). She provides examples of the use of grids in many contexts.

### *Stuttering – General Coverage*

Most of the studies that have used a personal construct theory of stuttering are based on the work of Fransella (1972). She postulated that those who had had speech disfluencies since childhood *stutter because it is in this way that he or she can anticipate the greatest number of events: it is by behaving in this way that life is most meaningful to him or her*. Someone who stutters cannot change because this is the only way they know to communicate with others. They have never known fluency.

Fransella tested this hypothesis with 20 people who stuttered, and modified Hinkle's (1965) implications grid into the *bipolar impgrids* (see Chapter 3 for a description). Each person in the sample completed one grid with constructs elicited from 'me as a stutterer' and a second grid with constructs elicited from 'me as a fluent speaker'. These were repeated at intervals during the therapy. The precise prediction was that as fluency increased, so the implications of being a fluent speaker would increase – it would become a more meaningful way of being. The results supported this prediction.

There is a chapter by Roberta Williams entitled 'Personal construct theory in use with people who stutter' in Fawcus, M. (Ed.) (1995) *Stuttering: From Theory to Practice*. London: Whurr Publishers. The following is a review of research conducted in this area up to 2001:

Stewart, T. & Birdsall, M. (2001) A review of the contribution of personal construct psychology to stammering therapy. *Journal of Constructivist Psychology*, **14**, 215–226.

More than 30 years since Fransella's original research work, these authors discuss the considerable use that has been made of the personal construct approach by speech and language therapists in the UK. This paper is of particular interest in that it includes a personal account of the second author's experience of personal construct therapy for his stammer.

### *Stuttering – Specific References*

Fransella, F. (1970b) Stuttering, not a symptom but a way of life. *British Journal of Communication Disorders*, **5**, 22.

This early paper argued that people who have been disfluent all their lives cannot be said to have a symptom. They know of no other way of 'being'. If this is so, then they have to learn what it will be like to be a fluent person. This is a major undertaking.

Meshoulam, L. (1978) There is more to stuttering than meets the ear: stutterers' construing of speaking situations. In F. Fransella (Ed.), *Personal Construct Psychology 1977*. London: Academic Press.

Using an implications grid and laddering, elicited constructs relating to speaking situations were examined. It was found that difficulties in speaking fluently relate to how stutterers construe their level of arousal in relation to specific situations.

Evesham, M. & Fransella, F. (1985) Stuttering relapse: the effects of a combined speech and psychological reconstruction program. *British Journal of Disorders of Communication*, **20**, 237–248.

As a further test of the Fransella hypothesis, one group of stutterers received fluency training in 'prolonged speech' and the other group had training plus personal construct work. Measures were made of disfluencies, and all 48 participants completed grids. People in both groups experienced a decrease in their disfluencies, but the technique group showed more improvement – a seemingly disappointing result. However, the relapse rate for the personal construct group proved to be significantly lower than that for the technique group, as would be predicted from personal construct theory. Those in the personal construct group were actually changing how they saw themselves as individuals. Once this happens, a person is less likely to go back to the beginning, although there may be sporadic relapses. Those who simply learn a technique for changing their behaviour may or may not reconstrue themselves as a person. The authors argued that speech improvement methods used alongside a personal construct therapeutic approach will speed up long-term improvement.

Naidoo, S. & Pillay, Y.G. (1990) Personal constructs of fluency: a study comparing stutterers and nonstutterers. *Psychological Reports*, **66**, 375–378.

This study of five stutterers and five non-stutterers found that both groups used stereotypes about stuttering. The authors concluded that this

'did not support Fransella's (1972) assumption that constructs relating to fluency differ in the communication subsystems of stutterers and nonstutterers' (p.375). However, they failed to take into account the fact that Fransella's was a process study – to determine how the construing of a person who stutters changes as his or her fluency increases. No individuals who did not stutter were included in the research. The subsystems of construing referred to were concerned with 'me as a stutterer' and 'me as a fluent speaker' *within* each person who stuttered.

Stewart, T. (1996) Good maintainers and poor maintainers: a personal construct approach to an old problem. *Journal of Fluency Disorders*, **21**, 22–48.
Looking at the maintenance of fluency gains, Stewart found that the people who did best were those who maintained a looser construing system during the therapy programme.

DiLollo, A., Neimeyer, R.A. & Manning, W.H. (2001) A personal construct psychology view of relapse: indications for a narrative therapy component to stuttering treatment. *Journal of Fluency Disorders*, **26**, 1–24.
These authors raise the issue of why the application of personal construct theory to the treatment of stuttering in the USA has been almost non-existent. They suggest that one of the reasons for this is the requirement for specialist training and the complexity of the assessment methods. While we agree that some knowledge and experience of personal construct theory are necessary for any practitioner, we would argue that the assessment methods are not a requirement of the reconstruction programme. The bipolar impgrids were used to test specific research hypotheses, and not as an integral part of the therapy. The authors of this paper follow Fransella's use of personal construct theory, suggesting that there is a need to talk about the relationship between the person and the problem, to find out how the person is able to predict that they are about to stutter, and in particular, that there should be a focus on fluency.

*Dysphasia*

There is very little to cite here, but Brumfitt's work suggests a way forward.

Brumfitt, S. (1985) The use of repertory grids with aphasic people. In N. Beail (Ed.), *Repertory Grid Technique and Personal Constructs: Applications in Clinical and Educational Settings*. London: Croom Helm.
Brumfitt used photographs of advertisements depicting human conditions (e.g. health vs. handicap, loneliness vs. being involved with people). She describes in detail how it was possible to elicit constructs from those with seriously impaired ability to speak. One important finding was that people with moderate or severe dysphasia see their 'past self' element as very similar to their 'ideal self'. The author concludes that the use of grids with people suffering from dysphasia can be very useful for gaining a

deeper understanding of what life for these individuals is like, and thereby deciding on a way forward for treatment. She also says that it is clear that such people can construe their worlds, but that this is at a more non-verbal and perhaps even preverbal level. We should bear in mind here that, theoretically at least, personal constructs do not just 'disappear' if their verbal labels are removed from them.

## DEPENDENCY

Kelly's original suggestion for assessing the ways in which individuals disperse their dependencies was by using the 'situational resources grid'. Over time, the same grid has been renamed the 'dependency grid'. It is described in Chapter 3, and ways of analyzing it are discussed in Chapter 4. Over the years, two types of dependency grid have evolved, namely 'those I depend on' and 'those who depend on me'.

### *General Coverage*

The use of dependency grids in different contexts has been discussed by Beail and Beail (1985a), their use in an educational setting has been described by Davis (1985).

### *Specific References*

Smith, J.E., Stefan, C., Kovaleski, M. & Johnson, G. (1991) Recidivism and dependency in a psychiatric population: an investigation with Kelly's dependency grid. *International Journal of Personal Construct Psychology*, **4**, 157–174.

Recidivism here refers to constant return to a psychiatric hospital. One of the many findings of this study was that the recidivists had fewer people on whom to depend (although this could be due to their frequent return to hospital), and did not regard depending on themselves as a viable option.

Talbot, R., Cooper, C.L. & Ellis, B. (1991) Uses of the dependency grid for investigating social support in stressful situations. *Stress Medicine*, **7**, 171–180.

These authors thought that the dependency grid might be useful for identifying those who might succumb to stress. They matched 14 hypertensive men who had succumbed to stress with a matched group of individuals who were not hypertensive. They used 22 potentially stress-provoking situations and 22 people who could be called upon for help. A major finding was that people with hypertension relied on themselves significantly more than the control subjects did. The authors suggest modifying the grid by using a rating scale to indicate how helpful

a particular individual might be instead of just putting an X. They conclude that the dependency grid could be of value in helping individuals to handle stressful situations.

Chiari, G., Nuzzo, M.L., Alfano, V., Brogna, P.D., Aandrrea, T., di Battista, G., Plata, P. & Stiffan, E. (1994) Personal paths of dependency. *Journal of Constructivist Psychology*, **7**, 17–34.

These authors used both types of dependency grid in a large study of adults to relate the theoretical definitions of the transitions (aggressiveness, threat and guilt) resulting from childhood experiences of early dependency relationships with parents.

Walker, B.M. (1997) Shaking the kaleidoscope: dispersion of dependency and its relationships. In R.A. Neimeyer & G.J. Neimeyer (Eds), *Advances in Personal Construct Psychology. Volume 4*. Greenwich, CT: JAI Press.

Walker discusses these two types of grid in her major overview of research in the area of dependency (*see also* Walker, 2003).

Tait, M. (1999) Using the repertory grid as a tool in a grounded approach to theory building: four models of dependency. In J.M. Fisher & D.J. Savage (Eds), *Beyond Experimentation into Meaning*. Farnborough: European Personal Construct Association Publications.

In this study, the meaning of dependency was explored with five therapists and five clients as part of a larger study looking at dependency within therapeutic relationships.

## THE USE AND ABUSE OF DRUGS

### *General Coverage*

There are not many reports of research on understanding the use and misuse of drugs from a personal construct perspective, but some are listed below. A major contribution to looking at drug use and abuse from a personal construct perspective is the following:

Burrell, M. (2002) Deconstructing and reconstructing substance use and 'addiction': constructivist perspectives. In R.A. Neimeyer & G.J. Neimeyer (Eds), *Advances in Personal Construct Psychology: New Directions and Perspectives*. Westport, CT: Praeger.

### *Specific References*

Heather, N., Edwards, S. & Hore, B. (1975) Changes in construing and outcome of group therapy for alcoholism. *Journal of Studies on Alcohol*, **36**, 1238–1253.

Using provided constructs and elements representing self constructions and role constructions of drinking, these authors showed different ways in which those in the sample identified themselves in relation to

alcoholism and styles of drinking. The individuals who were successfully treated were those who made a clearer distinction between alcoholics and others. There were ambiguous findings with regard to the likelihood of relapse.

Rubino-Watkins, F., Doster, F., Franks, J.A., Kelly, K.S., Sonnier, B.L., Goven, A.J. & Moorfield, R. (1999) Oral contraceptive use: implications for cognitive and emotional functioning. *Journal of Nervous and Mental Disease*, **187**, 275–280.

Grids with selves as elements were used together with several other psychological and physiological measures. Users and non-users were mainly distinguished by the former having high integration scores and the latter being associated with several of the 'anger' scores.

Ng, H.-Y. (2002) Drug use and self-organization: a personal construct study of religious conversion in drug rehabilitation. *Journal of Constructivist Psychology*, **15**, 263–278.

In this study, 86 chronically heroin-addicted men were recruited to represent the three stages of a 1-year voluntary residential programme in Hong Kong. A fourth group consisted of the Leaders, who were themselves reformed addicts. Grids consisted of 12 elicited constructs and 12 supplied elements. The constructs were classified using Landfield's (1971) method. The changes occurring at each stage of the programme are interpreted in relation to a personal construct theory of drug abuse.

## THE FAMILY

It is surprising how little research has been done with 'the family'. What has been done is dominated by the work of Harry Procter. Details of his approach can be found in the following:

Procter, H.G. (1985) Repertory grids in family therapy and research. In N. Beail (Ed.), *Repertory Grid Technique and Personal Constructs: Applications in Clinical and Educational Settings*. Beckenham: Croom Helm.

Procter, H.G. (1996) The family construct system. In D. Kalekin-Fishman & B. Walker (Eds), *The Construction of Group Realities*: *Culture, Society and Personal Construct Psychology*. Malabar FL: Krieger.

Two other references, both to his application of personal construct psychology to the understanding of autism, are of interest.

Procter, H.G. (2000) Autism and family therapy: a personal construct approach. In S. Powell (Ed.), *Helping Children with Autism to Learn*. London: David Fulton.

Procter, H.G. (2001) Personal construct psychology and autism. *Journal of Constructivist Psychology*, **14**, 107–126.

He has also described new ways of using grids with family members (which are discussed in Chapter 3):

Procter, H.G. (2002) Constructs of individuals and relationships. *Context*, **59**, 11–12.

## FORENSIC WORK

### *General Coverage*

There are two books on personal construct psychology and forensic work, and a couple of useful chapters. Following these, references to other specific publications are listed.

Houston, J. (1998) *Making Sense with Offenders: Personal Constructs, Therapy and Change*. Chichester: John Wiley & Sons.

Horley, J. (2003a) *Personal Construct Perspectives on Forensic Psychology*. London: Bruner-Routledge.

Landfield, A.W. & Epting, F.R. (1987) *Personal Construct Psychology: Clinical and Personality Assessment*. New York: Human Sciences Press.

This book includes single case studies on voyeurism, exhibitionism, violence and molestation.

Horley, J. (2003b) Forensic personal construct psychology: assessing and treating offenders. In F. Fransella (Ed.), *International Handbook of Personal Construct Psychology*. Chichester: John Wiley & Sons.

This chapter provides a general discussion of personal construct work with offenders and a specific review of the literature on sexual offenders.

### *Specific References*

Gunn, J., Watson, J. & Gristwood, J. (1976) A grid investigation of long-term prisoners. In P. Slater (Ed.), *The Measurement of Intrapersonal Space by Grid Technique. Volume 1. Explorations of Intrapersonal Space*. London: John Wiley & Sons.

In this study, 90 long-term prisoners ranked different ways of responding to a set of stressful situations, including 'go thieving', 'smash up' and 'get drunk'. The rankings were combined into a 'consensus' grid which was then analyzed into its principal components. The first component was very large, accounting for 71.4% of the variance. This showed that it was feelings rather than actions that were viewed as the most likely consequences of all the stressful situations. There were also tendencies for being depressed and thieving to be seen as specific responses to lack of accommodation, money and work, for punching out and smashing up to

be associated with being laughed at, rudeness and fights, and getting drunk and not thieving to be associated with rows.

Norris, M. (1977) Construing in a detention centre. In D. Bannister (Ed.), *New Perspectives in Personal Construct Theory*. London: Academic Press.

In this extensive study, 50 entrants to a Detention Centre completed one grid on arrival and one just before leaving after serving a 2-month sentence. The focus was on changes in perceptions of self and ideal self and the interrelationship between those elements and supplied constructs which were concerned with rule-breaking and dependency. One finding was that 80% of the sample had reduced their ideal aspirations and about 50% perceived themselves less favourably when they left the Centre. It was also found that, on entry, 88% saw themselves as rule-breakers but 66% aspired not to be so. On leaving, 90% saw themselves as rule-breakers and only 48% aspired not to be so.

Heather, N. (1979) The structure of delinquent values: a repertory grid investigation. *British Journal of Social and Clinical Psychology*, **18**, 263–275.

In this study, 40 convicted delinquents and 40 school prefects completed grids consisting of 8 supplied and 12 elicited constructs and were ranked on 8 elements of male youths (four liked and four not liked). Among the many results was the finding that there were no substantial differences in the values held by either group.

Lockhart, W.H. (1979) Illustrations of the use of self-identity plots to measure change with young offenders. *Journal of Adolescence*, **2**, 139–152.

Two examples are given of the use of a self-identity plot (described by Norris & Makhlouf-Norris, 1976) (for a discussion of this, *see* Chapter 5). One example given by Lockhart was of its use with a disturbed, withdrawn adolescent boy who had difficulties in communicating verbally, and the second example concerned its use with a delinquent of below-average intelligence and with poor reading skills. In each case the results related clearly to the boys' behaviour.

Kelly, D. & Taylor, H. (1981) Take and escape: a personal construct study of car 'theft'. In H. Bonarius, R. Holland & S. Rosenberg (Eds), *Personal Construct Psychology: Recent Advances in Theory and Practice*. London: Macmillan.

In this study, it was found that drivers rather than passengers in stolen cars and those who 'got home safe' after one theft reduced the distance between their normal self and their ideal self, and driving without the owner's consent was construed in positive terms.

Miller, K. & Treacher, A. (1981) Delinquency: a personal construct approach. In H. Bonarius, R. Holland & S. Rosenberg (Eds), *Personal Construct Psychology: Recent Advances in Theory and Practice*. London: Macmillan.

The elements in the first study were five television heroes. Constructs were elicited individually from 10 delinquent boys and 10 non-delinquents. The figure with whom the delinquents identified most strongly was a tough policeman who ignored interpersonal skills and

chose direct action as his preferred method of problem solving. One of the important figures in the second study was the delinquent's brother, who had often 'escaped' from the family system and earned good money.

Stanley, B. (1985) Alienation in young offenders. In N. Beail (Ed.), *Repertory Grid Technique and Personal Constructs: Application in Clinical and Educational Settings*. London: Croom Helm.

Stanley also used the self-identity measure of Norris and Makhlouf-Norris (1976) to measure self and/or social alienation in young offenders. It was concluded that such alienation does exist in many young offenders, and that the self-identity plot is a useful measure of such alienation and can be used to monitor change over time.

Horley, J. & Quinsey, V. (1995) Child molesters' construal of themselves, other adults and children. *Journal of Constructivist Psychology*, **8**, 193–212.

Grids with supplied elements and elicited constructs were completed by a group of child molesters, non-child-molester offenders and a group of men who answered a newspaper advertisement and who had not been convicted of sexual assault. No differences between the groups were found with regard to their descriptions of children. However, the differences that were found included child molesters seeing themselves and women as less attractive than did non-molesters.

## MAPS, PLANNING AND ENVIRONMENT

### *General Coverage*

To our knowledge, there has been relatively little research in this area and, as far as we know, there are no general texts that we can refer you to.

### *Specific References*

Little, B.R. (1968b) Psychospecialization: functions of differential interest in persons and things. *Bulletin of the British Psychological Society*, **21**, 113.

This was probably the first time that repertory grids had been used with architectural elements. Little found that 'person' specialists made more frequent use of personal-type constructs and 'specialists' focused more on physical dimensions.

Sewell, W.R. & Little, B.R. (1973) Specialists, laymen and the process of environmental appraisal. *Regional Studies*, **7**, 161–171.

These authors followed up Little's (1968b) research described above. They argue that specialization impedes the appraisal process.

Hudson, R. (1974) Images of the retailing environment. *Environment and Behavior*, **6**, 470–494.

In this study, 26 people completed grids to explore their images of grocers' shops using 11-point scales. Since all 282 constructs were elicited individually, measures included number and variety elicited. In order to reduce the subjective nature of any grouping by the author, all elicited constructs are provided in the paper.

Stringer, P. (1974) The use of repertory grid measures for evaluating map formats. *British Journal of Psychology*, **65**, 23–34.

This author turned to a relatively unusual topic area and grid element in studying the effects of colour and base on laymen's construing of urban planning maps. Since such maps are designed to introduce the general public to planning projects which will affect their future environment, the degree to which they can be understood and the ways in which they are understood need to be assessed. The maps and plans were used as the elements of a grid, and the effect of the use of colour in such plans was particularly clearly demonstrated.

Stringer, P. (1976) Repertory grids in the study of environmental perception. In P. Slater (Ed.), *Measurement of Intrapersonal Space by Grid Technique. Volume 1. Explorations of Intrapersonal Space*. London: John Wiley & Sons.

Here the emphasis is placed on the importance of relating attitudes expressed by informants in their grids to independent evidence of their behaviour. The author describes his research into attitudes expressed by women in the neighbourhood toward alternative plans for the redevelopment of a shopping centre. Maps of the existing situation and six alternative plans were used as elements, and constructs were elicited by comparing the elements in pairs. The experiment was replicated by showing different informants' maps which had been drafted in different ways. The work is reported in some detail.

Riley, S. & Palmer, J. (1976) Of attitudes and latitudes: a repertory grid study of perceptions of seaside resorts. In P. Slater (Ed.), *Measurement of Intrapersonal Space by Grid Technique. Volume 1. Explorations of Intrapersonal Space*. London: John Wiley & Sons.

Constructs were individually elicited from various resorts as elements. One unusual feature of this study was the analysis of a 'great grid', which consisted of 25 elements and 672 constructs. The resulting principal components showed resorts grouped according to geography. Thus, for example, the second component was 'West Country', characterized by *expensiveness, exclusiveness, good beaches* and *warmth* compared with the rest of the UK.

Honikman, B. (1976) Construct theory as an approach to architectural and environmental design. In P. Slater (Ed.), *Measurement of Intrapersonal Space by Grid Technique. Volume 1. Explorations of Intrapersonal Space*. London: John Wiley & Sons.

In this study, the focus of interest was on people's views of living rooms. The author used what is now called 'pyramiding' with the elicited

constructs. A subject would, for instance, be asked why he thought a particular room was 'formal'. The results showed that, as expected, people tended to end up with very subordinate constructs, such as physical characteristics – for example, starting with the living room being *organized* because *it has a place for everything* and this is known because *it has cupboards and shelves*. Resistance-to-change grids were then used to indicate the relative importance of the constructs. Honikman argues that such an approach can be invaluable to an architect such as himself.

Embacher, J. & Buttle, F. (1989) A repertory grid analysis of Austria's image as a summer vacation destination. *Journal of Travel Research*, **27**, 3–7.

Elements (countries visited while on holiday, but always including Austria and Switzerland) and constructs were elicited and individual grids used. Austria was compared with Switzerland, which was considered to be the main competitor. The authors concluded that grids were an appropriate method for establishing how holidaymakers construe various destinations.

## MARKET RESEARCH

This section could have been included in the previous one, except that it is best covered by the one paper of Marsden and Littler (1998) in which they explain why repertory grids have had such a bad press among market researchers:

Marsden, D. & Littler, D. (1998) Repertory grid technique: an interpretive research framework. *European Journal of Marketing*, **34**, 816–834.

These authors say that grids have been seen as generating 'utterly valueless' and 'irrelevant' information from consumers (Gordon & Langmaid, 1988), as showing 'slavish adherence' to the notion of bipolarity of constructs (Frost, 1982) and as not being based on an 'adequate theory' of human behaviour (Grunert *et al.*, 1996). However, Marsden and Littler challenge the consensus opinion that grids are of limited use, both theoretically and by offering a detailed account of one study they have conducted. They say that it is important to elicit constructs by triads or some other means, and then to ladder and also pyramid the constructs. In addition, they advocate some form of statistical analysis, preferably using individual grids with the same elements to form a 'great grid'.

They conclude that, at a methodological level, grids produce a 'more holistic picture of consumer experience', and they recognize that grids combine qualitative with quantitative analyses. They also suggest some modifications to the methods that they used – such as utilizing the

elicitation methods within ordinary conversation, which is done in many contexts already (*see* Chapter 2). This is a very thoughtful and useful paper, especially for those involved in market research.

## POLITICS

### *General Coverage*

There is not a great deal to report here, but enough to warrant a separate section. As Bannister (2003) mentions, Kelly had stated that it was probably politics that he would like to explore next. The following are general discussions of the topic.

Du Preez, P. (1980) *Social Psychology of Politics*. Oxford: Basil Blackwell.
This is a personal construct account of politics in South Africa.

Stojnov, D. (2003) Moving personal construct psychology to politics: understanding the voices with which we disagree. In F. Fransella (Ed.), *International Handbook of Personal Construct Psychology*. Chichester: John Wiley & Sons.

### *Specific References*

Fransella, F. & Bannister, D. (1967) A validation of repertory grid technique as a measure of political construing. *Acta Psychologica*, **26**, 97–106.
This research has been described in Chapter 6 and is mentioned here as one of the few studies to have been conducted in the context of 'politics'.

Petrenko, V., Mitina, O. & Brown, R. (1995) The semantic space of Russian political parties on a federal and regional level. *Europe–Asia Studies*, **47**, 835–857.
In this study, constructs were supplied and were used to construe 44 elements representing the main parties and movements in Russia. The findings of this study are compared with those from an earlier study conducted in 1991. One finding of this very extensive research was that the third factor in the principal components analysis was labelled 'human rights'. In 1991, 'individual rights' were opposite to 'the state', whereas in 1993 (when this survey was carried out) the 'rights of the individual lay in opposition to the demands of national-patriots that certain privileges be awarded on the grounds of nationality and religion' (p.855).

Stojnov, D., Knezevic, M. & Gojic, A. (1997) To be or not to be a Serb: construction of national identity amongst Yugoslav students. In P. Denicolo & M. Pope (Eds), *Sharing Understanding and Practice*. Farnborough: European Personal Construct Association Publications.
These authors found that for Serbs, the only alternative to going to war was being slaughtered by the Croatian Government – which had already

happened in 1941. For the Croats, the alternative to fighting and expelling Serbs from Croatia was losing the territory inhabited by Serbs. Laddering the construct *war* vs. *peace* yielded constructs such as *choosing to be yourself* instead of *losing your being* and *surviving* vs. *being slaughtered*.

## CAREERS

### *General Coverage*

Neimeyer, G.J. (Ed.) (1992a) Thematic issue on personal constructs in career counselling and development. *Journal of Career Development* (*Special Issue*), **18**, 163–236.

We refer you to this issue because it contains a number of papers that describe the use of grids in career guidance and counselling. It contains the following articles:

Neimeyer, G.J. (1992b) Personal constructs in career counselling and development. *Journal of Career Development*, **18**, 163–174.

Forster, J.R. (1992) Eliciting personal constructs and articulating goals. *Journal of Career Development*, **18**, 175–186.

Cochran, L. (1992) The career project. *Journal of Career Development*, **18**, 187–198.

Kortas, L., Neimeyer, G.J. & Prichard, S. (1992) Structure and style in career decision making. *Journal of Career Development*, **18**, 199–214.

Peavy, R.V. (1992) A constructivist model of training for career counsellors. *Journal of Career Development*, **18**, 215–228.

Spokane, A.R. (1992) Personal constructs and careers: a reaction. *Journal of Career Development*, **18**, 229–236.

### *Specific References*

Davies, R. (1985) Using grids in vocational guidance. In N. Beail (Ed.), *Repertory Grid Technique and Personal Constructs: Applications in Clinical and Educational Settings*. London: Croom Helm.

This chapter starts by looking at the subject generally, and then considers how grids have been used in vocational guidance and research.

Neimeyer, G.J. (1992c) Personal constructs and vocational structure: a critique of poor reason. In G.J. Neimeyer & R.A. Neimeyer (Eds), *Advances in Personal Construct Psychology*. *Volume 2*. Greenwich, CT: JAI Press.

This chapter provides an overview of and thoughtful comments on much of the research that was undertaken up to 1992.

Burke, M. & Noller, P. (1995) Content analysis of changes in self-construing during a career transition. *Journal of Constructivist Psychology*, **8**, 213–226.

In this study, a group of teacher trainees completed five grids over a 2-year period with 'self' in different roles as elements to elicit personal

constructs which were content analyzed using Landfield's method (Landfield, 1971). A change in construing over time was found, indicating both personal and professional development.

## SPORT

To date, this has not been a major area of interest to personal construct researchers, but it may well be one area that will develop in the future.

Feixas, G., Marti, J. & Villegas, M. (1989) Personal construct assessment of sport teams. *International Journal of Personal Construct Psychology*, **2**, 49–54.

The perspectives of the manager, the individual football team members and the whole team were studied using Procter's family grid method (Procter, 1985). The authors describe the *team grid* (based on content analysis of individuals' constructs) as a useful tool.

Jones, F., Harris, P. & Walter, H. (1998) Expectations of an exercise prescription scheme: an exploratory study using repertory grids. *British Journal of Health Psychology*, **3**, 277–289.

As the title of this study suggests, the authors found that the grid was useful for eliciting the expectations of people with regard to an exercise programme.

Savage, D. (2003) A sporting use of personal construct psychology. In F. Fransella (Ed.), *International Handbook of Personal Construct Psychology*. Chichester: John Wiley & Sons.

This chapter summarizes some of the research undertaken in the area of sports psychology.

## ORGANIZATIONAL AND BUSINESS APPLICATIONS

It is perhaps worth drawing attention to the fact that there are no references to the use of personal construct psychology and repertory grids with personnel in business and organizations in the first edition of the *Manual for Repertory Grid Technique*. This was not just an omission – it was literally because the authors had not come across any literature in this area. It is now clear that there were a few studies being published in the mid-1970s, just at the time when the manuscript for the *Manual* would have been completed.

Between then and now, an enormous number of studies have been reported, far too many to mention here, so just some of them are listed below.

### *General Coverage*

There are several useful papers and chapters giving reviews of the literature.

Stewart, V. & Stewart, A. (1981) *Business Applications of Repertory Grid*. London: McGraw-Hill.

This is a 'how-to-do-it' book specifically for those working in organizations. The first seven chapters are on creating the grid itself, but Part 2 is on 'uses of the repertory grid in industry'. These are uses in market research, quality control, questionnaire design, motivation, organizational climate and managerial effectiveness, evaluation of training and counselling.

Jankowicz, A.D. (1990) Applications of personal construct psychology in business practice. In B.A. Neimeyer & G.J. Neimeyer (Eds), *Advances in Personal Construct Psychology. Volume 1*. Greenwich, CT: JAI Press.

This is mainly for the person who wants to know what has been done in the field before conducting their own research or designing their own interventions in an organization. While making no attempt to be definitive, it looks at what research has been carried out under various headings. The first part is on conventional business procedures and covers work on job analysis, employee selection, employee induction, training and performance appraisal. The second part deals with more individual issues, such as individual management development, management teambuilding, decision making and problem solving, and career guidance. Finally, there is a discussion of methodological issues and future developments.

Easterby-Smith, M., Thorpe, R. & Holman, D. (1996) Using repertory grids in management. *Journal of European Industrial Training*, **20**, 2–30.

Easterby-Smith was one of the very early exponents of the use of grids in organizations, especially with management. This monograph is for the practitioner who wants to know 'How do I do it?', and it makes little reference to the literature on grids and personal construct psychology. Apart from giving descriptions of what grids are, different types of grids and methods of analysis, this monograph is full of useful advice on how to use grids in the workplace. The Appendices are of particular value, dealing as they do with designing a performance appraisal questionnaire, a group discussion exercise and an exchange grid.

Brophy, S., Fransella, F. & Reed, N. (2003) The power of a good theory. In F. Fransella (Ed.), *International Handbook of Personal Construct Psychology*. Chichester: John Wiley & Sons.

After a discussion of the relevance of personal construct psychology within the organizational field, this chapter covers the usefulness of the theory and of grids for surveys, the understanding of bullying, knowledge management, organizational structure, aspects of the management process, coaching, counselling and mentoring.

We shall now give brief summaries of some specific papers in different subsections. Our choice does not imply that these are any more important than papers that are not mentioned.

## Studies of Managers and Their Development

*Specific References*

Easterby-Smith, M. & Ashton, D. (1975) Using repertory grid technique to evaluate management training. *Personnel Review*, **4**, 15–21.

These authors used grids to help the individual manager to assess his relationships with others at work.

Honey, P. (1979) The repertory grid in action: how to use it as a self-insight exercise. *Industrial and Commercial Training*, **11**, 407–414.

The author gives a blow-by-blow account of how he uses grids with groups aiming first to give each course member feedback about how others perceive them so that they can build on strengths and overcome weaknesses during the second half of the course, and secondly, to give each course member some insight into what they notice about other people and how it fits in with the conclusions that they reach about them. The idea is to jolt them into being both more observant and more careful when drawing conclusions about people.

Eden, C. & Jones, S. (1984) Using repertory grids for problem construction. *Journal of the Operational Research Society*, **35**, 779–790.

Using the important people attending a meeting as elements and elicited constructs, the manager was able to put into words why certain of those people were causing him to feel anxious about meeting them.

Boxer, P. (1985) Judging the quality of development. In D. Bowd, R. Keogh & D. Walker (Eds), *Reflection: Turning Experience into Learning*. London: Kogan Page.

In this paper, the author talks about the way he developed an adaptation of the repertory grid to enable the manager to represent his or her world on the computer. He says it became a sort of computerized Rorschach test.

Brown, C.A. & Detoy, C.J. (1988) A comparison of the personal constructs of management in new and experienced managers. In F. Fransella & L. Thomas (Eds), *Experimenting with Personal Construct Psychology*. London: Routledge.

In this study, Kelly's Role Construct Repertory Test was used to elicit the construing of new and experienced managers. The individual personal constructs were categorized using Landfield's method (Landfield, 1971). The new managers focused very much on social construing of management, while experienced managers were more concerned with forcefulness.

Jankowicz, A.D. & Hisrich, R. (1989) Subjective judgement in commercial lending. *Banking Ireland*, **1**, 21–22.

One finding of this study was that bankers place great emphasis on intuition. One is reported as saying 'In lending, the danger is that the banks will push us down the road of information-gathering, like a computer. But computers don't have intuitions, yet we need to; so much is not black and white, but grey'.

Hisrich, R.D. & Jankowicz, A.D. (1990) Intuition in venture capital decisions: an exploratory study using a new technique. *Journal of Business Venturing*, **5**, 49–62.

This follows on from the above study by Jankowicz and Hisrich, with the venture capitalists being told that the grid was to involve their intuitions about issues as opposed to specific information. One way in which the venture capitalists differed from the bankers was in their very low cognitive complexity ('a remarkably high proportion of the construct variance related to a single theme'), which was the adequacy of management.

Fransella, F. & Porter, J. (1990) Using personal construct psychology in self-development. In M. Pedler, J. Bourgoyne, T. Boydell & G. Welshman (Eds), *Self-Development in Organisations*. Maidenhead: McGraw-Hill.

The work reported here is about both self-development and teambuilding. The case is made for using personal construct theory and grids in this context, and then an example is given of the use of an *exchange grid* (see Mendoza, 1985) in a group setting. The team worked through the grid computer analysis. One of the outcomes of the group discussions was that each person started to see how others in the group could hold alternative perspectives of the same events.

Watson, W., Ponthieu, L. & Doster, J. (1995) Business owner-managers' descriptions of entrepreneurship: a content analysis. *Journal of Constructivist Psychology*, **8**, 33–52.

The authors summarized the extensive literature on *entrepreneurship* and found confusion over what traits entrepreneurs have that make them different from others, as well as lack of agreement over terminology. Therefore they asked the question 'What constructs are often used to describe entrepreneurship?'. The data were gathered from answers to a mailed questionnaire asking for descriptions of successful and unsuccessful entrepreneurs. These were content-analyzed into construct categories based on grounded theory. They see their construct categories as forming the basis of the development of a description of an entrepreneurship system.

O'Cinneide, B. (1986) The Cheesecraft case. In B. O'Cinneide (Ed.), *The Case for Irish Enterprise*. Dublin: Enterprise Publications.

This paper describes how an Irish entrepreneur structured a taste session in which existing cheeses were tasted and then treated as elements in a repertory grid. The use of a supplied element, 'my ideal cheese', allowed an analysis to be made which identified the attributes of an ideal cheese in the group as a whole. The entrepreneur then created a cheese with those characteristics.

## Management Team Development

Armstrong, T. & Eden, C. (1979) An exploration in occupational role: an exercise in team development. *Personnel Review*, **8**, 20–23.

Hinkle's implications grid and a repgrid were used to provide a vehicle for team development. There was individual feedback of results followed up with group discussions. The teambuilding was developed by the group focusing on the constructs on which there was little shared meaning. The authors describe how they used graphs to present the results to the group, as the team members would not understand complex statistical data. They concluded that the exercise was a major contributor to the manager feeling that his team was more effective.

Eden, C. (1988) Cognitive mapping: a review. *European Journal of Operational Research* **36**, 1–13.

This is a clear account of Colin Eden's early work in cognitive mapping, in which he compares the repertory grid and the directed graph as aids to managerial decision-making, particularly in group situations. It describes the use of computer-assisted Group Decision Support Systems, using an early version of software on which more recent programs such as Sage Publications' DECISION EXPLORER are based.

## Organization Culture

### *General Coverage*

A general discussion of this can be found in the chapter by Adrian Robertson in which he describes the use of Kelly's concept of the 'super pattern' and how that may be used to understand why many large organizations resist change.

Robertson, A. (2003) Making sense of the 'group mind'. In F. Fransella (Ed.), *International Handbook of Personal Construct Psychology*. Chichester: John Wiley & Sons.

### *Specific References*

Boxer, P. (1988) Regnancy: a shadow over personal construing. In F. Fransella & L. Thomas (Eds), *Experimenting with Personal Construct Psychology*. London: Routledge.

Boxer talks of this regnancy being an organization's 'mythology', something everyone believes but which is not personal to them. This has now been seen to relate to what Kelly called 'super-patterns', which have been described by Robertson (2003). Boxer describes how he developed his computer program NIPPER based on the repertory grid. The way in which he uses his program to explore the construing of managers is indicated in the following example of a manager's description: 'The main problem in describing our work is one of labels. What happened was not a ''course'', nor was it psychoanalysis. I suppose, if I have to attach a label to it, it was a process of increasing awareness of the emotional culture in which I operate, that culture being one of the

most important limiting factors to my performance as an individual and, more important, as a member of a number of groups of people' (p.423).

Applegate, J.L., Coyle, K., Seibert, J.H. & Church, S.M. (1989) Interpersonal constructs and communicative ability in police environment: a preliminary investigation. *International Journal of Personal Construct Psychology*, **2**, 385–400.

The development of the construing system and the ability to communicate was studied in an institutional setting, namely a police force, in relation to length of service. Construct system development was measured by Crockett's (1965) Role Category Questionnaire (RCQ) (see Chapters 2 and 5). The constructs were coded to provide measures of abstractness, and other measures were based on responses to hypothetical communication situations. The results were largely in line with the predictions, but the authors discuss the difficulties in interpreting results obtained from a single police force.

Coopman, S.J., Hart, J., Allan, M.W. & Haas, J.W. (1997) Detecting cultural knowledge in organization members' personal construct systems. *Journal of Constructivist Psychology*, **10**, 321–338.

In this study, 50% of participants at a television station completed a modified version of Crockett's (1965) Role Category Questionnaire (RCQ) in which they described one liked and one disliked co-worker. The authors conclude that the RCQ was a valuable tool for tapping members' cultural interpersonal recipe knowledge.

Dick, P. & Jankowicz, A.D. (2001) A social constructionist account of police culture and its influence on the representation and progression of female officers: a repertory grid analysis in a UK police force. *Policing*, **24**, 181–199.

Brophy, S. (2003) Clarifying corporate values: a case study. In F. Fransella (Ed.), *International Handbook of Personal Construct Psychology*. Chichester: John Wiley & Sons.

Brophy describes the process of using grids to identify the values of the corporation, which led to the development of a Code of Values for the company.

## Organizational Change

### *General Coverage*

Cornelius has reviewed the literature on this subject and gives three examples of the application of the personal construct perspectives for helping organizations to change in her chapter in the following reference:

Cornelius, N. (2003) The struggles of organizational transitions. In F. Fransella (Ed.), *International Handbook of Personal Construct Psychology*. Chichester: John Wiley & Sons.

### *Specific References*

Fransella, F., Jones, H. & Watson, J. (1988) A range of applications of PCP within business and industry. In F. Fransella & L. Thomas (Eds), *Experimenting with Personal Construct Psychology*. London: Routledge.

These authors describe the development of a personal construct attitude method for use with organizations that are contemplating implementing a change programme. It involves individual interviews for eliciting and laddering constructs from the target groups, categorizing these into about 12 groupings and selecting one construct from each group to represent that group. These form a standard grid which is then administered to groups of people from the same target groups.

Brophy, S. (1993) *Construing new realities: an organizational case study*. Unpublished Diploma dissertation, Centre for Personal Construct Psychology, London.

Research involving workshops and using repertory grids was conducted with a large organization which was intending to change to one that allowed the market to operate and the consumer to have choices. Instead of the usual layers of management, there were to be 'clusters'. The research outlines how the 54 groups of branch managers and one group of senior management personnel came to construe and reconstrue 'a cluster' over a 2-year period.

Cassell, C., Close, P., Duberley, J. & Johnson, P. (2000) Surfacing embedded assumptions: using repertory grid methodology to facilitate organizational change. *European Journal of Work and Organisational Psychology*, **9**, 561–573.

The grid here is used as a developmental tool rather than an exploratory one. Grids were used with three organizations to identify commonly held assumptions about a range of behaviours. The authors argue that grids have a useful part to play in diagnosing the key issues that are faced when organizations change and development interventions are planned.

## MORE UNUSUAL USES OF GRIDS

### The Arts

#### *General Coverage*

The arts are grouped together here because there are not very many studies for any particular art. In general terms, Eric Button (music and personal constructs) talks about the application of personal construct ideas to the understanding of music, and Don Bannister takes a personal construct psychologist's view of novel writing and reading. Both of these can be found in the following:

Fransella, F. & Thomas, L. (Eds) (1988) *Experimenting with Personal Construct Psychology*. London: Routledge & Kegan Paul.

*Specific References*

Davis, J. (1976) Orchestral discord. *New Society*, **8**, 46–47.

In this study of how members of an orchestra construe each other, Davis found that brass players and string players do not think much of each other. Brass players think string players are, among other things, like a flock of sheep, oversensitive and believe they are 'God's gift to music', whereas string players view brass players as being less intelligent, liking the limelight and being the clowns.

Jankowicz, A.D. (1987) Construing artistic imagery: an alternative approach to creative block. *Leonardo*, **20**, 1.

Contemporary approaches to the understanding of creative block in the graphic and fine arts tend to draw on various Freudian approaches to understanding why the artist's work can sometimes grind to a halt. This article offers the repertory grid as an alternative medium in which the artist can represent and explore the constraints which are blocking the work, and it provides two case examples of repertory grids elicited from a painter and a sculptor confronting that situation.

Ben-Peretz, M. & Kalekin-Fishman, D. (1988) Applying PCP to constructs related to music. In F. Fransella & L. Thomas (Eds), *Experimenting With Personal Construct Psychology*. London: Routledge & Kegan Paul.

Although the authors did not conduct a study using a repertory grid, they discuss the many issues that a researcher would have to address, such as the many difficulties that are encountered when selecting the elements for the construal of music.

Miall, D. (1988) A repertory grid study of responses to poetry. In F. Fransella & L. Thomas (Eds), *Experimenting With Personal Construct Psychology*. London: Routledge & Kegan Paul.

In this study, students were given a poem to read and study for 1 or 2 weeks. Parts of the poem were then used as elements and constructs were elicited from individuals. Although there was commonality in how the students construed the poem, there was also considerable individuality as each brought their unique experiences to colour their understanding.

Blowers, G.H. & Bacon-Shone, J. (1994) On detecting the differences in jazz: a reassessment of comparative methods of measuring perceptual veridicality. *Empirical Studies of the Arts*, **12**, 41–58.

These authors looked at ways of detecting perceptual differences between different types of jazz.

Cruise, K.R. & Sewell, K.W. (2000) Promoting self-awareness and role elaboration: using repertory grids to facilitate theatrical character development. *Journal of Constructivist Psychology*, **13**, 231–248.

A group of adolescent high school drama students involved in the production of *The Boys Next Door*, by Tom Griffin, completed grids on three occasions. These were to explore the relationship between the self and the character that each was playing, to help the cast to understand each other and the important character relationships, and to help to understand the similarities and differences in how each individual construed the others as characters vs. as actors. The authors concluded that the project had been very successful, particularly in providing information about how the characters were construed, which formed the basis of group discussions.

## Space Medicine

Gushin, V.I., Efimov, V.A., Smirnova, T.M., Vinokhodova, A.G. & Kanas, N. (1998) Subject's perceptions of the crew interaction dynamics under prolonged isolation. *Aviation, Space and Environmental Medicine*, **69**, 556–561.

These Russian authors studied three-man space crews undergoing prolonged isolation in a space simulator for either 135 or 90 days. Grids with elicited and supplied constructs were completed by each astronaut before, monthly during and 1 week after isolation. The environments of the hermetically sealed chambers corresponded to the *Mir* space station standards. The elements in the grid were fellow crew members, 'me as child', 'as at present' and 'ideally', plus seven 'other personages'. Successful psychological adaptation was postulated to be reflected in increasing integration of the self-images. Successful crew adaptations would be reflected in increasing similarity between self-images and those of crew members. The grids were completed on each crew member's computer. Both crews behaved similarly. There was crew disintegration, with two crew members coming to see each other as more similar and to view the third member as dissimilar. It was felt that this was a serious finding and that further study was necessary.

## Chess

Horgan, D.D., Millis, K. & Neimeyer, R.A. (1989) Cognitive reorganization and the development of chess expertise. *International Journal of Personal Construct Psychology*, **2**, 15–36.

These authors studied the construing of novice, expert and master chess players, looking at structure rather than content of construing. Among other things, they found differences in the way in which information was processed, and that the skill involved far more than storage of information.

## Fertility Control

Simons, J. (1976) Measuring the meaning of fertility control. In P. Slater (Ed.), *The Measurement of Intrapersonal Space by Grid Technique. Volume 1. Explorations of Intrapersonal Space*. London: John Wiley & Sons.

This is an interesting analysis of the confrontation between indigenous and cosmopolitan construct systems. The confrontation arose in the attempt to persuade village midwives in Central Java to promote fertility control. Data were elicited from answers to standard questions. The results suggest that many of the 40 midwives who were interviewed did not share cosmopolitan beliefs and values, and were unlikely to be vigorous advocates of fertility control. This inference was supported by a study of the midwives' subsequent performance in recruiting clients for family planning clinics.

## Construing Animals

Grajfoner, D., Wernelsfelder, F. & Austin, E. (2002) The qualitative assessment of pig behaviour using repertory grid technique. In *Proceedings of the British Society of Animal Science*, July 2002, York.

Constructs were elicited by showing seven people 10 video clips of 10 individual female pigs. Bipolar constructs used by the majority of people were then rated by the seven individuals. There was significant agreement between raters for all except one pig. Multidimensional scaling showed two dimensions to be *shyness–boldness* and *gentleness–roughness*.

Similar research has also been reported with chimpanzees:

Dutton D.M., Clark, R. & Dickins, D.W. (1997) Personality in captive chimpanzees: use of a novel rating procedure. *International Journal of Primatology*, **18**, 539–552.

Appendix

# COMPUTER PROGRAMS AND WEBSITES

Sewell, *et al*. (1992) reviewed computer software that was available at the time for the elicitation and analysis of repertory grids. Although this review is important for historical reasons, some of the programs continue to be available, such as OMNIGRID (Sewell *et al*., 1991) and FLEXIGRID (Tschudi, 1993). In general, computer programs are distributed by individuals and information about them is found on websites. At the present time, the most up-to-date website is http://www.pcp-net.de/info/index.htm. Intending users should monitor these sites, as new programs are constantly being developed. Unless programs are described as 'freeware', there is a cost associated with obtaining them. Prospective users should therefore contact the source of the software to ascertain the current cost.

## Grid Elicitation Software

REPGRID (*see* http://repgrid.com/repgrid/) provides grid elicitation procedures for Mac users, while FLEXIGRID (email: Finn.Tschudi@psykologi.uio.no) and EnquireWithin (*see* http://www.EnquireWithin.co.nz/) provide elicitation procedures for PC users. All of these programs also perform the analysis of repertory grid data. There are usually two phases in the elicitation program. The first establishes the format of the elicitation, and the second phase performs the elicitation procedure. Freeware programs are available, but are usually less sophisticated. There are some older programs written in the interpreter-Basic language, such as OMNIGRID and GPACK (Bell, 1987), which both elicit and analyze grids but require the presence of the interpreter program, while other elicitation-only freeware is compiled from basic

programs such as NEWGRID and RUNGRID (Bell, 2000b,c) that do not require such support. These all need to be run under DOS, which can be run from Windows. There is one Web-based elicitation program, namely WEBGRID II (found at http://tiger.cpsc.ucalgary.ca:1500/WebGrid/WebGrid.html), which is a simplified version of REPGRID, which also allows for both elicitation and analysis.

## Grid Analysis Software

In addition to the programs mentioned above, there are a number of PC programs that can be used to analyze repertory grids. Unless otherwise stated, these run in a Windows environment.

- IDIOGRID (http://www.idiogrid.com/) contains a variant of Slater's original INGRID and a number of other univariate and bivariate statistics and measures (Grice, 2002).
- inGridX, formerly WINGRID (http://homepages.ihug.co.nz/~income/tutorial.htm) is another variant of INGRID oriented to organizational use.
- GRIDLAB (http://www.charite.de/psychosomatik/pages/forschung/groups/gridlab/index.html) is a simple version of INGRID.
- GRIDCOR (http://www.terapiacognitiva.net/record/gridcor.htm) provides a correspondence analysis approach, a clustering representation and some standard grid indices.
- GRIDSTAT (Bell, 1998), GRIDSCAL (Bell, 1999) and IMPSTAT (Bell, 2003a) are freeware DOS programs. GRIDSTAT contains all of the major forms of analyses for a single grid, GRIDSCAL allows the analysis of multiple grids, and IMPSTAT produces the bipolar implication grid statistics reported here. These programs can be downloaded from the Wiley website that supplements this book at http://www.wiley.co.uk/fransella.

  For further information on these and other programs, see also http://www.pcp-net.de/info/index.htm.

## Some Standard Statistical Packages that can be used for Grid Analysis

- SAS (http://www.sas.com/)
- SPSS (http://www.spss.com/)
- SYSTAT (http://www.systat.com/)

A document describing how to use SPSS syntax to analyze repertory grid data can also be found at the Wiley website (http://www.wileyeurope.com/go/fransella).

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